

**CALIFORNIA COASTAL COMMISSION**

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Staff:	Melissa B. Kraemer
Staff Report:	June 29, 2007
Hearing Date:	July 13, 2007
Commission Action:	

**STAFF REPORT:****PERMIT AMENDMENT**

APPLICATION NUMBER:	<b>1-03-004-A1</b>
APPLICANT:	<b>Reclamation District 768</b>
AGENT:	Oscar Larson & Associates (Attn: Stein Coriell)
PROJECT LOCATION:	1,500-acre Reclamation District, including a 4.9-mile-long levee system, located north and south of Highway 255 along the northern shoreline of the Arcata Bay lobe of Humboldt Bay and the banks of Mad River Slough, Arcata Bottom area, Humboldt County.
DESCRIPTION OF PROJECT PREVIOUSLY APPROVED:	Repair of a 230-foot-long breach in a portion of the levee north of Hwy 255, replacement of three 36-inch-diameter culverts and floodgates, and a 10-year permit for routine repair and maintenance activities on the levee system.
DESCRIPTION OF AMENDMENT REQUEST:	Amend the project description to include the proposed "2007 Levee Repair Project", which would repair and/or protect approximately 7,877 linear feet (~1.5 miles) of eroded and damaged levee in 2007.

OTHER APPROVALS:

- 1) U.S. Army Corps of Engineers Clean Water Act Section 404 Individual Permit No. 4002350N (pending)
- 2) North Coast Regional Water Quality Control Board Clean Water Act Section 401 Water Quality Certification No. 1B06068WNHU
- 3) Humboldt Bay Harbor, Recreation, and Conservation District Administrative Permit No. A-2007-04 (dated May 31, 2007)
- 4) U.S. N.O.A.A.-Fisheries Informal Consultation File No. 2007/00730 (dated April 18, 2007)
- 5) U.S.D.I. Fish and Wildlife Service (USFWS) Formal Consultation File No. 8-14-2006-3050 (dated April 27, 2007)

SUBSTANTIVE FILE  
DOCUMENTS:

- 1) Commission CDP File No. 1-03-004
- 2) Commission CDP File No. 1-03-061-G
- 3) Commission CDP File No. 1-03-070-G
- 4) Commission CDP File No. 1-04-017-G
- 5) Commission CDP File No. 1-04-040-G
- 6) Commission CDP File No. 1-04-050-W
- 7) Commission CDP File No. 1-04-060-G
- 8) Commission CDP File No. 1-07-008-G
- 9) Commission CDP File No. 1-05-044-G
- 10) Humboldt County Local Coastal Program

**SUMMARY OF STAFF RECOMMENDATION**

On March 17, 2005, the Commission approved Coastal Development Permit No. 1-03-004 (Reclamation District 768) for repair of a 230-foot-long breach in a portion of the levee north of State Highway 255, replacement of three 36-inch-diameter culverts and floodgates, and a ten-year permit for routine repair and maintenance activities on the levee system. The proposed permit amendment requests authorization to implement the 2007 Levee Repair Project, which proposes to repair and/or protect approximately 7,877 linear feet (~1.5 miles) of the applicant's 4.9-mile long levee system. This includes approximately 60 repair sites, each with damage/repairs extending from 10 to 1,520 feet in length. The 2007 Levee Repair Project is funded by the Federal Emergency Management Agency (FEMA) Public Assistance Program and in part by the State of California Office of Emergency Services and is proposed to repair substantial damage caused by severe winter storms and associated storm surge during the 2005-2006 and 2006-2007 winters.

The methods and protocols proposed for the 2007 Levee Repair Project for the most part do not differ significantly from those authorized under the existing permit in terms of erosion control measures, types of materials and equipment, *etc.* In addition, the footprint of the levee is proposed to match the original levee footprint and will not extend into Arcata Bay, the sloughs, or landward wetland areas further than its original configuration, as was required under the original authorization. However, the 2007 Levee Repair Project is significantly larger in scale than project activities authorized under the existing permit. With the attachment of various conditions, and minor changes to existing permit conditions, the development authorized by the amended permit would be consistent with the Commission's intent in granting the original permit with conditions to avoid significant adverse impacts to wetland and other ESHA resources. Added special conditions require 1) the permittee to undertake all development in accordance with the least environmentally damaging methods feasible for installation of temporary access roads, staging areas, and ditch crossings; 2) specific erosion control procedures and best management practices to be used to protect water quality and sensitive coastal resources; 3) submittal of a debris disposal plan prior to issuance of the permit amendment for the disposal of excess construction-related debris such as broken concrete and vegetation and soil spoils; 4) implementation of various measures to minimize project impacts on Tidewater goby and Tidewater goby proposed critical habitat; implementation of rare plant mitigation measures to minimize impacts to two rare plant species in the area; 5) submittal of an archaeological plan in the event that cultural resources are unearthed during construction activities; 6) the applicant to assume the risks of injury and damage from hazard and waive any claim of damage or liability against the Commission; 7) documentation of U.S. Army Corps approval prior to commencement of construction; and 8) the applicant to grant Commission staff permission to inspect the premises for determining condition compliance.

Staff believes that the amended development, as conditioned, is consistent with all Coastal Act policies.

**The Motion to adopt the Staff Recommendation of Approval with Conditions is on Page 6.**

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**STAFF NOTES:**

**1. Procedural Note**

Section 13166 of the California Code of Regulations states that the Executive Director shall reject an amendment request if: (a) it lessens or avoids the intent of the approved permit; unless (b) the applicant presents newly discovered material information, which he or she could not, with reasonable diligence, have discovered and produced before the permit was granted.

On March 17, 2005, the Commission approved Coastal Development Permit No. 1-03-004 (Reclamation District 768) for repair of a 230-foot-long breach in a portion of the levee north of State Highway 255, replacement of three 36-inch-diameter culverts and floodgates, and a ten-year permit for routine repair and maintenance activities on the levee system. The Commission approved the project with two special conditions. Special Condition No. 1 addresses the length of development authorization (5 years with up to one request for an additional 5-year period of development authorization). Special Condition No. 2 addresses standards for the repair and maintenance work, including specifications on armoring rock, fill material, placement of materials, revegetation of disturbed areas, spoils disposal, erosion control, spill prevention, no wet season work, no wetland fill, pre-contractor training, monitoring, annual reports, and annual inspections.

The proposed permit amendment requests authorization to implement the 2007 Levee Repair Project, which proposes to repair and/or protect approximately 7,877 linear feet (~1.5 miles) of the applicant's 4.9-mile long levee system. This includes approximately 60 repair sites, each with damage/repairs extending from 10 to 1,520 feet in length. The 2007 Levee Repair Project is funded by the Federal Emergency Management Agency (FEMA) Public Assistance Program and in part by the State of California Office of Emergency Services and is proposed to repair substantial damage caused by severe winter storms and associated storm surge during the 2005-2006 and 2006-2007 winters.

The methods and protocols proposed for the 2007 Levee Repair Project for the most part do not differ significantly from those authorized under the existing permit in terms of erosion control measures, types of materials and equipment, *etc.* In addition, the footprint of the levee is proposed to match the original levee footprint and will not extend into Arcata Bay, the sloughs, or landward wetland areas further than its original configuration, as was required under the original authorization. However, the 2007 Levee Repair Project is significantly larger in scale than project activities authorized under the existing permit. The existing permit authorizes routine repair and maintenance activities through 2010 (with an option to request additional authorization through 2015).

The scale of the 2007 Levee Repair Project requires modification of some of the basic procedures for performing levee repairs authorized under the original permit which approved a program of smaller scale periodic repairs rather than one large massive repair project to occur all at once. For example, construction staging areas need to be much larger, and additional construction access roads are required. Temporary fill of grazed seasonal wetlands is required to accommodate these staging areas and roads for the larger 2007 project. Special Condition No. 1 of the original permit, among other requirements, precludes the placement of either permanent or temporary wetland fill outside of the footprint of the existing levees to avoid significant adverse effects to such wetlands. However, given the need to repair large portions of the levee in a timely fashion to avoid catastrophic flooding from further deterioration and breaching of the levees and the lack of sufficient upland areas for staging and construction access near the repair sites, some wetland fill for staging and access roads is unavoidable.

The proposed use of wetlands for staging and access roads conflicts with the conditions of the original permit. However, the levee damage from the storm events of recent winters since issuance of the original permit and the need to perform a much larger levee repair project constitute newly discovered material information which the applicant could not have discovered and produced or even known about before the original permit was granted. Furthermore, with the attachment of the conditions described below, the development authorized by the amended permit would be consistent with the Commission's intent in granting the original permit with conditions to avoid significant adverse impacts to wetland and other ESHA resources. The relevant new conditions attached to the permit amendment include the following:

- Special Condition No. 3 requires the permittee to undertake all development in accordance with the least environmentally damaging methods feasible for installation of temporary access roads, staging areas, and ditch crossings. This condition also requires restoration of temporarily impacted wetland areas to pre-project conditions, and monitoring and reporting to ensure restoration success. In addition, the special condition requires specific construction protocols to be used to ensure water quality protection and to minimize project impacts on sensitive resources.
- Special Condition No. 4 requires specific erosion control procedures and best management practices to be used to protect water quality and sensitive coastal resources.
- Special Condition No. 5 requires submittal of a debris disposal plan prior to issuance of the permit amendment for the disposal of excess construction-related debris such as broken concrete and vegetation and soil spoils.
- Special Condition No. 6 requires implementation of various measures to minimize project impacts on Tidewater goby and Tidewater goby proposed critical habitat.
- Special Condition No. 7 requires implementation of rare plant mitigation measures to minimize impacts to two rare plant species in the area: Humboldt Bay owl's-clover and Point Reyes bird's-beak.

Therefore, the Executive Director has determined that the proposed amendment would not lessen or avoid the intent of the approved permit and has accepted the amendment request for processing.

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## **1. Commission Jurisdiction and Standard of Review**

The proposed development will be conducted on levees located within state tidelands and public trust lands in Humboldt County. Pursuant to Section 30519 of the Coastal Act, the Coastal Commission retains jurisdiction over the review and issuance of Coastal

Development Permits in these areas even though the County of Humboldt has a certified Local Coastal Program. The standard of review for projects located in the Commission's original jurisdiction is Chapter 3 of the Coastal Act.

## **2. Scope**

This staff report addresses only the coastal resource issues affected by the proposed permit amendment, provides recommended special conditions to reduce and mitigate significant impacts to coastal resources caused by the development, as amended, in order to achieve consistency with the Coastal Act, and provides findings for conditional approval of the amended development. All other analysis, findings, and conditions related to the originally permitted development, except as specifically affected by the proposed permit amendment and addressed herein, remain as stated within the original permit approval adopted by the Commission on March 17, 2005.

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## **I. MOTION, STAFF RECOMMENDATION, AND RESOLUTION:**

The staff recommends that the Commission adopt the following resolution:

### **Motion:**

I move that the Commission approve the proposed amendment to Coastal Development Permit No. 1-03-004 pursuant to the staff recommendation.

### **Staff Recommendation of Approval:**

Staff recommends a **YES** vote. Passage of this motion will result in approval of the permit amendment as conditioned and adoption of the following resolution and findings. The motion passes only by affirmative vote of a majority of the Commissioners present.

### **Resolution to Approve with Conditions:**

The Commission hereby approves the proposed permit amendment and adopts the findings set forth below, subject to the conditions below, on the grounds that the development with the proposed amendment, as conditioned, will be in conformity with the Chapter 3 policies of the Coastal Act. Approval of the permit complies with the California Environmental Quality Act because all feasible mitigation measures and alternatives have been incorporated to substantially lessen any significant adverse impacts of the development on the environment.

**II. STANDARD CONDITIONS:** See Attachment A.

**III. SPECIAL CONDITIONS:**

**Note:** Special Condition Nos. 1 and 2 of the original permit are modified and reimposed as conditions of this permit amendment and remain in full force and effect. Special Condition Nos. 3 through 11 are added as conditions of CDP Amendment No. 1-03-004-A1.

Deleted wording within the modified special conditions is shown in ~~striketrough~~ text, new condition language appears as **bold double-underlined** text.

1. **Length of Development Authorization for Ongoing Routine Repair and Maintenance Authorized by CDP 1-03-004**

Development authorized by this permit, **other than the development authorized by Amendment No. 1-03-004-A1 for the 2007 Levee Repair Project,** is valid for five (5) years from the date of Commission approval (until March 17, 2010). One request for an additional five-year period of development authorization may be accepted, reviewed and approved by the Executive Director for a maximum total of 10 years of development authorization, provided the request would not substantively alter the project description, and/or require modifications of conditions due to new information or technology or other changed circumstances. The request for an additional five-year period of development authorization shall be made prior to March 17, 2010. If the request for an additional five-year period would substantively alter the project description, and/or require modifications of conditions due to new information or technology or other changed circumstances, an amendment to this permit will be necessary.

2. **Standards for Repair and Maintenance Work for Ongoing Routine Repair and Maintenance Authorized by CDP 1-03-004**

**The permittee shall undertake all development authorized by this amended permit, other than the development authorized by Amendment No. 1-03-004-A1 for the 2007 Levee Repair Project, in accordance with the following standards:**

- a. **Armoring Rock:** All new revetment material to be used shall consist of either clean quarry rock or concrete rubble materials that are free of asphalt and waste materials. The revetment materials shall not be greater than three feet in any one direction or smaller than one cubic foot in size **except for the Light Class RSP placed between the RSP fabric and the exposed armoring rock.** All exposed reinforcement bar shall be removed prior to installation of any concrete rubble riprap. ~~Armoring rock shall be~~

~~stockpiled outside seasonal wetlands and transitional agricultural lands.~~  
No rock shall be placed outside of the existing footprint of the levee system.

- b. Fill Material: Only dry, clean fill may be used for levee repairs and must be free of debris (vegetation, asphalt etc.). Fill material shall be stockpiled outside of seasonal wetlands or transitional agricultural lands. No fill shall be placed outside of the existing footprint of the levee system.
- c. Placement of Materials: Materials placed on the levees to be repaired, including all riprap, shall not extend into the slough or Arcata Bay beyond the footprint of the levee as it existed before the repair. The determination of the location of the front of the levee shall be made through a 'string line' method, whereby the portions of the levee that are not in need of repair or restoration on each side of the areas that is in need of repair shall be used to determine the maximum extent of the repair. Revetment material shall not be end-dumped, but placed in an interlocking fashion along the levee face to avoid spreading beyond the former footprint of the levee and to provide a structurally integrated revetment.
- d. Revegetation of Disturbed Areas: When repair and maintenance activities disturb more than 100 square feet of area within the existing footprint of the levee, the disturbed area shall, immediately upon completion of the repair and maintenance activity, be revegetated with appropriate native plants. Naturalized plants, approved by the Department of Fish & Game, may be used to revegetate the upland portions of the site.
- e. Disposal of Excess Material and Vegetation: All construction debris and cut vegetation, except grass clippings from mowing the top of the levee, shall be removed from the site and disposed of only at an authorized disposal site. Side casting of such material or placement of any such material within Arcata Bay, Mad River Slough, any wetland area including the grazed seasonal wetlands inboard of the levees is prohibited.
- f. Installation of Silt Fences: Silt fences or equivalent devices shall be installed along the perimeter of each repair site prior to the placement of any fill materials to reduce the discharge of fill materials and sediment laden runoff into Arcata Bay, Mad River Slough, or the wetlands on the inboard sides of the damaged levees. The installed silt fences or equivalent devices shall be maintained during project construction and removed upon completion of the project.
- g. Spill Prevention: To prevent and address spills of equipment fuels, lubricants, and similar materials, the repair work shall incorporate the following measures: (a) no equipment fueling shall occur on the site or



elsewhere along the levees; (b) all equipment used during construction shall be free of oil and fuel leaks at all times; (c) oil absorbent booms and/or pads shall be on site at all times during project construction and deployed if necessary in the event of a spill; and (d) all spills shall be reported immediately to the appropriate public and emergency services response agencies.

- h. Wet Season Work Prohibited: Repair and maintenance activities authorized by this permit shall only be performed during the dry season (April 15 to October 15).
- i. No Wetland Fill: No permanent or temporary fill of tidal wetlands or of the inboard ditch or any other seasonal wetland is allowed by this permit. Ditch crossings must be accomplished by temporary bridging that must be removed within one week of completion of work on that portion of the levee served by the bridge.
- j. Pre-construction Contractor Training: Prior to the commencement of any repair and maintenance activities authorized by this permit which have not yet been undertaken, the Applicant shall ensure that the Contractor understands and agrees to observe the standards for work outlined in this permit and in the detailed project description included as part of the Applicants submittal and as revised by these conditions.
- k. Monitoring: Repair and maintenance activities shall be monitored by a qualified Civil Engineer, or equivalent expert, during the dry season no less frequently than every three months to ensure that work performed under this permit is consistent with the terms of the permit. The Monitor shall have the authority to stop work and to recommend remediation of ongoing work in order to comply with the terms and conditions of this permit.
- l. Annual Reports: The Applicant shall submit an annual report to the Executive Director by November 15 annually for the life of the permit. The report shall describe the repair and maintenance activities completed during the reporting period and identify potential activities for the coming year.
- m. Annual Inspection: The levee system shall be inspected by a qualified Civil Engineer or equivalent, to identify areas where repair and maintenance work will be needed within the coming year. The location and type of work needed shall be described in a written report. The Engineers report shall be submitted to the Reclamation Board of Directors, the district's biologist and to the Executive Director. The report is due annually on November 15. If, based on this report, the biologist identifies

any work areas that are within potential habitat areas, the biologist shall survey those areas for the presence of Point Reyes Bird's Beak or Humboldt Bay Owl's Clover. If either of these species is found in the area scheduled for disturbance, the plants shall be avoided.

**3. Standards for the 2007 Levee Repair Project Authorized by Amendment No. 1-03-004-A1**

**The permittee shall undertake all development authorized by Amendment No. 1-03-004-A1 for the 2007 Levee Repair Project in accordance with the following standards:**

- a. Temporary access roads and staging areas: As described in the Project Description dated June 21, 2007 (Exhibit No. 3), road surfacing materials (including road stabilization fabric, redwood bark and/or road base) shall be placed directly on top of the existing ground and then removed immediately upon completion of construction activities in the area. The existing topsoil shall not be removed for any purpose.**
- b. Temporary ditch crossings: The permittee shall use only the temporary bridge design for temporary ditch crossings, as depicted in Figure 8 of Exhibit No. 3. No culverts or fill shall be placed in ditches for temporary crossing purposes. Any temporary bridge crossing shall remain in place for no more than 30 days maximum.**
- c. Upon completion of project activities in the area and prior to October 15, 2007, all temporarily disturbed seasonal wetlands (including but not limited to temporary staging areas, access roads, and ditch crossings) shall be decompacted and reseeded, as needed, with a mix of regionally appropriate native grasses and/or noninvasive agricultural species. No plant species listed as problematic and/or invasive by the California Native Plant Society, the California Invasive Plant Council, or as may be identified from time to time by the State of California, shall be employed or allowed to naturalize or persist on the site. No plant species listed as a "noxious weed" by the governments of the State of California or the United States shall be utilized within the property.**
- d. The use of rodenticides containing any anticoagulant compounds, including, but not limited to, Bromadiolone, Brodifacoum or Diphacinone shall not be used.**
- e. Within 18 months of completion of the 2007 Levee Repair Project, the permittee shall submit, for the review and written approval of the**

Executive Director, a vegetation monitoring report prepared by a qualified biologist or botanist which evaluates whether the objective of reestablishing vegetation in all of the seasonal wetland areas (diked former tidelands) impacted by project construction to a level of coverage and density equivalent to vegetation coverage and density of the surrounding undisturbed areas has been achieved. If the report indicates that the revegetation of any of the disturbed areas, including the temporary access roads and staging areas identified on Figure 4 of Exhibit No. 3, has not been successful, in part or in whole, the permittee shall submit a revised revegetation program to achieve the objective. The revised revegetation program shall require an amendment to Coastal Development Permit No. 1-03-004.

- f. Heavy equipment shall not operate in the bay or wetted channel. All repair or restoration work shall be done from the top of the levee or from the landward side of the channel by loader, backhoe, or excavator;
- g. No construction materials, debris, or waste shall be placed or stored where it may be subject to entering waters of Arcata Bay, Mad River Slough, or seasonal wetlands outside of levee repair areas and temporary staging areas and access roads;
- h. All construction debris shall be removed and disposed of in an upland location at an approved disposal facility within 10 days of project completion;
- i. All construction activities shall be conducted during the dry season period of April 15 through October 15;
- j. All construction activities shall be conducted during low tide or limited to the areas above mean high water;
- k. During construction, all trash shall be properly contained, removed from the work site, and disposed of on a regular basis to avoid contamination of habitat during restoration activities. Following construction, all trash and construction debris shall be removed from work areas and disposed of properly;
- l. Any debris discharged into coastal waters shall be recovered immediately and disposed of properly;
- m. Any fueling and maintenance of construction equipment shall occur within upland areas outside of environmentally sensitive habitat areas or within designated staging areas;

- n. Fuels, lubricants, and solvents shall not be allowed to enter the coastal waters or seasonal wetlands. Hazardous materials management equipment including oil containment booms and absorbent pads shall be available immediately on-hand at the project site, and a registered first-response, professional hazardous materials clean-up/remediation service shall be locally available on call;
  - o. All temporary access roads and staging areas shall be limited to the locations and sizes specified in the permit amendment application.
  - p. Armoring Rock: All new revetment material to be used shall consist of either clean quarry rock or concrete rubble materials that are free of asphalt and waste materials. The revetment materials shall not be greater than three feet in any one direction or smaller than one cubic foot in size except for Light Class RSP placed between the RSP fabric and the exposed armoring rock. All exposed reinforcement bar shall be removed prior to installation of any concrete rubble riprap. No rock shall be placed outside of the existing footprint of the levee system.
  - q. Fill Material: Only dry, clean fill may be used for levee repairs and must be free of debris (vegetation, asphalt etc.). No fill shall be placed outside of the existing footprint of the levee system.
  - r. Placement of Materials: Materials placed on the levees to be repaired, including all riprap, shall not extend into the slough or Arcata Bay beyond the footprint of the levee as it existed before the repair. The determination of the location of the front of the levee shall be made through a 'string line' method, whereby the portions of the levee that are not in need of repair or restoration on each side of the areas that is in need of repair shall be used to determine the maximum extent of the repair. Revetment material shall not be end-dumped, but placed in an interlocking fashion along the levee face to avoid spreading beyond the former footprint of the levee and to provide a structurally integrated revetment.
4. Erosion Control Procedures for the 2007 Levee Repair Project Authorized by Amendment No. 1-03-004-A1

The permittee shall undertake all development authorized by Amendment No. 1-03-004-A1 for the 2007 Levee Repair Project in compliance with the following erosion control procedures:

- A. The permittee shall use relevant best management practices (BMPs) as detailed in the “California Storm Water Best Management (Construction and Industrial/Commercial) Handbooks, developed by Camp, Dresser & McKee, *et al.* for the Storm Water Quality Task Force (see <http://www.cabmphandbooks.com>).
- B. All repair or restoration activities involving the levee shall include the placement of geotextile or similar erosion control material between the authorized fill and the levee and the placement of the riprap to reduce or minimize the amount of erosion that may otherwise occur.
- C. Effective erosion control measures shall be in place at all times during construction. Construction must not commence until all temporary erosion control devices (*e.g.*, silt fences, floating turbidity curtains, *etc.*) are in place downslope or downstream of the project site. A supply of erosion control materials shall be maintained on site to facilitate a quick response to unanticipated storm events or emergencies. If continued erosion is likely to occur after construction is completed, then appropriate erosion prevention measures shall be implemented and maintained until erosion has subsided. Erosion control devices are temporary structures and shall be removed after completion of construction
- D. Erosion controls shall be used to protect and stabilize stockpiles and exposed soils to prevent movement of materials (*e.g.*, silt fences, berms of hay bales, plastic sheeting held down with rocks or sandbags over stockpiles, *etc.*).
- E. If operations are not adequately containing sediment, the activity shall cease. Turbid water shall be contained and prevented from being carried away in the tides in amounts that are deleterious to marine resources or could violate state pollution laws.
- F. Work sites shall be winterized at the end of each day when significant rains are forecast that may cause unfinished excavation to erode.
- G. After project completion and before the close of the seasonal work window, all exposed soils present in and around the project site which may deliver sediment to a wetland, the bay, or the slough shall be stabilized with mulch, seeding, and/or placement of erosion control blankets. Erosion control seeding shall include only native, regionally appropriate species or noninvasive agricultural species. No plant species listed as problematic and/or invasive by the California Native Plant Society, the California Invasive Plant Council, or as may be identified from time to time by the State of California, shall be

employed or allowed to naturalize or persist on the site. No plant species listed as a “noxious weed” by the governments of the State of California or the United States shall be utilized within the property.

5. Debris Disposal Plan for the 2007 Levee Repair Project Authorized by Amendment No. 1-03-004-A1

A. PRIOR TO THE ISSUANCE OF PERMIT AMENDMENT NO. 1-03-004-A1, the applicant shall submit, for the review and approval of the Executive Director, a plan for the disposal of excess construction-related debris from the 2007 Levee Repair Project, including broken concrete removed from levee areas to receive riprap, vegetation spoils (from clearing and grubbing of levees), excess fill, and other materials. The plan shall describe the manner by which the material will be removed from the construction site and identify a disposal site that is in an upland area where materials may be lawfully disposed.

B. The permittee shall undertake development in accordance with the approved final plan. Any proposed changes to the approved final plan shall be reported to the Executive Director. No changes to the approved final plan shall occur without a further Commission amendment to Coastal Development Permit Amendment No. 1-03-004-A1.

6. Implementation of Tidewater Goby Mitigation Measures for the 2007 Levee Repair Project Authorized by Amendment No. 1-03-004-A1:

The permittee shall undertake all development authorized by Amendment No. 1-03-004-A1 for the 2007 Levee Repair Project in accordance with the following protocols to ensure minimization of impacts to Tidewater goby and Tidewater goby proposed critical habitat:

A. Effective and appropriate erosion control devices shall be used in accordance with all repair work at all times; any erosion control devices used are temporary and shall be removed upon completion of project activities;

B. Any material that slips beyond the levee configuration into the mudflats outside the levee or the inboard borrow ditch and associated wetland channels shall be removed to staging areas and/or hauled off site;

C. As specified in Special Condition No. 3-b above, the permittee shall use only the temporary bridge design for temporary ditch crossings, as depicted in Figure 8 of Exhibit No. 3. No culverts or fill shall be

placed in ditches for temporary crossing purposes. Any temporary bridge crossing shall remain in place for no more than 90 days maximum.

D. Prior to construction of any temporary ditch crossing, Tidewater gobies shall be excluded from the areas of impact by using seine netting stretching from substrate to water surface and bank to bank. The netting must be a knotless mesh of no greater than 0.125-inch openings in the largest dimension. Netting shall be deployed in such a way that it excludes gobies from the construction area and keeps them from entering the construction zone until the structure is in place and all work within the wetted channels for the purpose of constructing the crossing has been completed. The results of fish exclusion efforts shall be reported to the U.S. Fish and Wildlife Service, the U.S. Army Corps of Engineers, and any other relevant agencies.

7. Rare Plant Mitigation Plan for the 2007 Levee Repair Project Authorized by Amendment No. 1-03-004-A1

A. PRIOR TO THE COMMENCEMENT OF CONSTRUCTION OF THE 2007 LEVEE REPAIR PROJECT ON BOTH THE JACKSON RANCH LEVEE AND THE ARCATA BAY LEVEE EAST OF REPAIR SITE #58 AS SHOWN ON FIGURE 4 OF EXHIBIT NO. 3, the permittee shall submit a plan for the review and approval of the Executive Director for the dispersal of seed from individual specimens of Humboldt Bay owl's clover (*Castilleja ambigua* ssp. *humboldtiensis*) and Point Reyes bird's-beak (*Cordylanthus maritimus* ssp. *palustris*) growing in these areas to adjacent salt marsh habitat.

1. The plan shall demonstrate that:

- (a) No construction activities shall occur in the affected areas until after all Humboldt Bay owl's clover and Point Reyes bird's beak plants have set seed, as determined by a qualified botanist;
- (b) If any rare plants are located in areas of potential impact, a qualified botanist shall collect and conserve all seed of the affected individuals to be distributed in a suitable habitat nearest to where the seed was collected that already contains Humboldt Bay owl's clover and Point Reyes bird's beak ; and

- (c) Collected seed shall be distributed into the identified habitat areas at the phenologically appropriate time, as determined by the qualified botanist..

2. The plan shall include at a minimum the following components:

- (a) Seasonally appropriate botanical surveys conducted by a qualified botanist for Humboldt Bay owl's clover and Point Reyes bird's beak that indicates the number of Humboldt Bay owl's clover and Point Reyes bird's beak located on the levee system in the areas of potential impact;
- (b) A map that locates the affected areas of levee construction relative to the habitat area where seed will be distributed; and
- (c) A narrative that describes the seed collection and distribution program and methods, identifies the habitats that will receive the seeds to be dispersed and why the receiver sites were selected, and discusses the phenologically appropriate time for distribution of the seed.

B. The permittee shall undertake development in accordance with the approved final plan. Any proposed changes to the approved final plan shall be reported to the Executive Director. No changes to the approved final plan shall occur without a Commission amendment to this coastal development permit unless the Executive Director determines that no amendment is legally required.

8. Area of Archeological Significance for the 2007 Levee Repair Project  
Authorized by Amendment No. 1-03-004-A1

- A. If an area of historic or prehistoric cultural resources or human remains are discovered during the course of the 2007 Levee Repair Project, all construction shall cease and shall not recommence except as provided in subsection (B) hereof, and a qualified cultural resource specialist shall analyze the significance of the find.
- B. A permittee seeking to recommence construction following discovery of the cultural deposits shall submit an archaeological plan for the review and approval of the Executive Director.



- (a) If the Executive Director approves the Archaeological Plan and determines that the Archaeological Plan's recommended changes to the proposed development or mitigation measures are de minimis in nature and scope, construction may recommence after this determination is made by the Executive Director.
- (b) If the Executive Director approves the Archaeological Plan but determines that the changes therein are not de minimis, construction may not recommence until after an amendment to this permit is approved by the Commission.

9. Assumption of Risk for the 2007 Levee Repair Project Authorized by Amendment No. 1-03-004-A1

By acceptance of this permit amendment for the 2007 Levee Repair Project, the applicant acknowledges and agrees (i) that the site may be subject to hazards from flooding; (ii) to assume the risks to the applicant and the property that is the subject of this permit of injury and damage from such hazards in connection with this permitted development; (iii) to unconditionally waive any claim of damage or liability against the Commission, its officers, agents, and employees for injury or damage from such hazards; and (iv) to indemnify and hold harmless the Commission, its officers, agents, and employees with respect to the Commission's approval of the project against any and all liability, claims, demands, damages, costs (including costs and fees incurred in defense of such claims), expenses, and amounts paid in settlement arising from any injury or damage due to such hazards.

10. U.S. Army Corps of Engineers Approval

PRIOR TO COMMENCEMENT OF CONSTRUCTION OF THE 2007 LEVEE REPAIR PROJECT, the permittee shall provide to the Executive Director a copy of a permit issued by the U.S. Army Corps of Engineers, or letter of permission, or evidence that no permit or permission is required. The applicant shall inform the Executive Director of any changes to the project required by the U.S. Army Corps of Engineers. Such changes shall not be incorporated into the project until the applicant obtains a further amendment to Coastal Development Permit No. 1-03-004-A1, unless the Executive Director determines that no amendment is required.

11. Permission to Inspect for the 2007 Levee Repair Project Authorized by Amendment No. 1-03-004-A1

**The Coastal Commission staff shall have the right, upon 24-hours notification to the permittee, to enter and inspect the premises for the purpose of determining compliance with Coastal Development Permit Amendment No. 1-03-004-A1.**

#### **IV. FINDINGS & DECLARATIONS**

The Commission finds and declares the following:

##### **A. Project & Site Description**

###### **1. Background & Project Setting**

Local winter storms from December 30, 2005 through January 3, 2006 led to overtopping, accumulation of debris, and the erosion of levees under the jurisdiction of Reclamation District 768. The 3.5-mile-long Arcata Bay levee is located south of State Highway 255 along the north side of Arcata Bay (Humboldt Bay), and the 1.4-mile-long Jackson Ranch levee is located north of State Highway 255 adjacent to the Mad River Slough (see Exhibit Nos. 1 and 2). The levees were originally constructed with Humboldt Bay mud and are 20 to 24 feet wide at the base and 10 to 12 feet wide at the top. Levee height ranges from approximately 7 to 10 feet above mean sea level.

Reclamation District 768 was established in 1904 and consists of approximately 1,500 acres of land. The District is responsible for the maintenance of the 4.9-mile levee system. Currently the property in the District is owned by 15 separate owners, including private citizens, the City of Arcata, Humboldt State University, the California Department of Fish and Game, and Arcata Lodge #106 (see Figure 1 of Exhibit No. 3). The publicly owned property is used primarily as marshland and wildlife habitat. The privately owned lands and the Arcata Lodge property are used as cattle pasture lands.

A major breach of the levees would subject all of the property in the Reclamation District to flooding. State Highway 255 and residential property and public infrastructure in the southwest portion of the City of Arcata also are at risk of flooding in the event of a major breach. The Commission has, in the past four years, issued at least nine permits for repair and maintenance of the levee system (see Substantive File Documents, page 2), including seven emergency permits that were necessary to protect coastal agricultural lands and public road facilities from flood damage following significant storm events.

The agricultural fields of the Reclamation District represent diked former tidelands of Arcata Bay that were converted to pasture for agricultural purposes after the levee was built around 1880. The fields are considered to be seasonal wetlands. Other jurisdictional wetlands in the proposed project area include the inboard ditches, sloughs, and Arcata Bay and Mad River Slough, which are located outside of the levee system. The only uplands on the project site are the levees themselves.

## **2. Description of Originally Approved Project**

On March 17, 2005, the Coastal Commission approved, with conditions, the following project (CDP No. 1-03-004; Exhibit No. 9), which consisted of three separate, but related, components:

- Follow-up Permitting for Culvert Replacement Emergency Permit Nos. 1-03-070-G and 1-04-017-G: The first part of the project was a follow-up permit to two Emergency Permits granted by the North Coast District Office in 2003 and 2004 for the replacement of three failing corrugated metal culverts and floodgates located at the west end of the levee system along Humboldt Bay and south of State Highway 255. The failed culverts were replaced with the same type and size of culverts and floodgates, with clean armoring rock re-installed around the outboard side of the levee (adjacent to Arcata Bay), consistent with the conditions placed on the Emergency Permits specifying the type of materials to be used in the repair of this section of the levee.
- Follow-up Permitting for Major Levee Breach Repair Emergency Permit No. 1-04-060-G: On December 23, 2003, a combination of extraordinarily high tides and 45 mile-per-hour (mph) winds caused a 230-foot-long breach in a portion of the levee located north of Highway 255. This breach resulted in the flooding of about 600 acres of pasture and a local county road and was temporarily contained by the installation of large “water bag” dikes. Emergency Permit No. 1-04-060-G was subsequently obtained from the North Coast District Office for repair of the breach along the original alignment with an earthen levee and outboard armoring as had existed prior to the incident, as well as the repair of 15 other, smaller eroded areas on the levee fronting Arcata Bay. This Emergency Permit was conditioned to require the use of clean fill for the levee and clean rock (*i.e.*, no debris, no re-bar) for the outboard armoring.
- Ten Year Programmatic Permit for Ongoing Repair & Maintenance Activities: The final part of the project involved a 10-year permit to undertake routine repair and maintenance of the levee system. In summary, the Reclamation District maintenance program includes vegetation control (mowing) along the top of the levees to allow access for maintenance equipment, replacement of riprap that has migrated or is needed to repair erosion, placement of clean fill to repair eroded areas, and flood gate and culvert replacement with the same size facilities. All of the work is to occur within the existing footprint of the levee and will not result in any encroachment into Arcata Bay or on the inboard (reclaimed land) side of the levee into the seasonal wetlands.

## **3. Description of Project Activities Proposed Under Coastal Development Permit Amendment No. 1-03-004-A1**

The applicant proposes to amendment Commission CDP No. 1-03-004 to authorize implementation of the 2007 Levee Repair Project, which is funded in part by the Federal Emergency Management Agency (FEMA) Public Assistance Program and in part by the State of California Office of Emergency Services. The 2007 Levee Repair Project proposes to repair and/or protect 7,877 linear feet (~1.5 miles) of the applicant's 4.9-mile long levee system. This includes approximately 60 repair sites with damage extending from 10 to 1,520 feet in length (see Exhibit No. 3). The footprint of the levee is proposed to match the original levee footprint and will not extend into Arcata Bay, the sloughs, or landward wetland areas further than its original configuration. The following project activities are proposed for the 2007 Levee Repair Project:

- a. Excavation of approximately 898 yds<sup>3</sup> of material (to prepare damaged areas for repair);
- b. Clearing and grubbing and debris removal of approximately 7,127 tons of material.
- c. Placement of approximately 3,631 yds<sup>3</sup> of engineered fill for levee repairs;
- d. Placement of approximately 8,126 yds<sup>3</sup> of rock slope protection (RSP) for levee repairs;
- e. Installation of approximately 8,000 linear feet of temporary access roads through seasonal wetlands (diked former tidelands);
- f. Installation of four 25,000 square-foot staging areas within seasonal wetlands (diked former tidelands) to stockpile and sort construction materials and to store heavy equipment such as excavators, backhoes, tracked dumpers, dump trucks, bulldozers, etc.

The applicant proposes two main types of repairs throughout the levee system: tidal influenced levee repairs and nontidal levee repairs. Both types of repair work involve debris removal (removing and disposing of existing broken concrete from all areas to receive riprap slope repair), clearing and grubbing (clearance of all vegetation and subsurface root masses on a site in anticipation of grading or construction), excavation to the lowest point of damage, and creating a level bench to be backfilled with engineered fill in maximum 8 inch lifts (compacted to a minimum of 90 percent). For tidal influenced levee repair sites, Type B RSP fabric is proposed to be placed on the graded soil slope and anchored at the toe and top of the levee. One-and-a-half-feet thickness of light class RSP (Caltrans Spec Section 72) is proposed to be placed on top of the RSP fabric, and a layer of class ½-ton RSP (Caltrans Spec Section 72) would be placed on top of the light class RSP. For nontidal repair site, coconut/straw erosion blankets are proposed to be installed on all disturbed earth surfaces with a slope greater than or equal to 1 to 1. For both types of repairs, all nontidal disturbed earth surfaces are proposed to be hydroseeded or broadcast seeded. See Figures 5 and 6 of Exhibit No. 3 for more details.

Equipment proposed for use in the project includes tracked or wheeled vehicles and hand tools. Materials proposed for use include engineered imported fill (to replace the existing clay/silt fill lost from the top of the Jackson Ranch levee and for repairing the sides of both the Jackson Ranch and Arcata Bay levees) and engineered imported clay/silt fill (to be used in all repair locations).

The applicant proposes a number of mitigation measures and Best Management Practices (BMPs) to avoid or minimize impacts to coastal resources and the environment. These are included in the project description (Exhibit No. 3), the Stormwater Pollution Prevention Plan, and the Botanical Assessment/Survey (Exhibit No. 4). They also are included as permit terms for the Harbor District's approval of the project (Exhibit No. 6). The proposed mitigation measures and BMPs include the following:

- Air quality: Dust suppression measures in the form of watering the work area are proposed to be used on access roads, materials storage areas, and during materials placement. The amount of water to be used will be the minimum necessary to avoid causing runoff from the top of the levee or outside the boundary of the staging area.
- Cultural resources: Should any historic or prehistoric cultural resources be encountered during construction, work is proposed to be halted in the affected area while a qualified archeologist assesses the significance of the find and develops a suitable mitigation plan.
- Hydrology & Water quality:
  - Refueling and maintenance of equipment is proposed to occur on designated staging areas only, and in compliance with the contractor's Spill Prevention Control and Countermeasure Plan (SPCC) prepared in accordance with 40 CFR §112. No equipment that visually displays signs of leaking fuels, lubricants, or similar materials would be allowed on site.
  - Construction activities are proposed to be limited to low tides and/or areas above mean high water between April 15 and October 15. No equipment would enter the wetted channel of existing drainages or tidal areas.
  - Erosion is proposed to be minimized by placement of geotextile fabric or similar erosion control material between the structural fill of the levee and the placement of riprap. The levee is proposed to be contoured to a stable condition before the equipment leaves the site.
  - Any construction materials that are inadvertently sloughed off into the bay, slough, or other wetland areas are proposed to be immediately removed, and no fill or other construction materials would be deposited into any wetland or water body.
  - The structural fill that is to be excavated is proposed to be placed temporarily on the top of the levee or in designated staging areas only. Materials not suitable for use as backfill are proposed to be spread along

the top of the levee (and subsequently compacted and revegetated, if necessary) or removed to an approved disposal site.

- Silt fences, floating turbidity curtains, or equivalent similar structures that meet sediment control requirements are proposed to be used to reduce the discharge of materials into the bay, slough, and other wetland areas. All erosion control devices would be removed following their use, and all would be installed consistent with the Stormwater Pollution Prevention Plan (SWPPP) prepared for the project and with the requirements of the State Water Resources Control Board permit issued for the project.
- Environmentally Sensitive Habitat Areas (ESHA):
  - Rare plant habitat: The proposed project area contains habitat for two rare plant species known to occur in coastal salt marsh habitat directly adjacent to the levees: Humboldt Bay owl's-clover (*Castilleja ambigua* ssp. *humboldtensis*) and Point Reyes' bird's-beak (*Cordylanthus maritimus* ssp. *palustris*). Both species are listed by the California Native Plant Society (CNPS) as List 1B.2 species and therefore meet the definition of ESHA per Coastal Act Section 30107.5 (see Section IV-E below). Both species were documented in areas that potentially may be impacted by the 2007 Levee Repair Project. The applicant completed a Botanical Assessment/Survey for the project and rare plant mitigation plan (Exhibit Nos. 4 and 5) that includes recommendations to avoid or minimize impacts to rare plant ESHA. These include incorporation of BMPs to avoid sedimentation of the salt marsh habitat within the slough, restricting construction and other activities that cause ground disturbance in the areas where rare plants have been identified until after reproductive individuals die back, conserving seed from rare plants growing along the levee and transplanting it to suitable habitat nearby, and pre- and post-construction monitoring of rare plants located immediately adjacent to the construction site to document any impacts that might occur as a result of project activities.
  - Tidewater goby habitat: The U.S. Fish and Wildlife Service's (USFWS) Formal Consultation for the project (Exhibit No. 7) notes that the proposed project is likely to adversely affect the Federally-listed endangered Tidewater goby (*Eucyclogobius newberryi*) and its proposed critical habitat. Tidewater goby is a small, short-lived fish that occurs in coastal brackish water habitats such as lagoons, tidal bays, and estuaries of rivers and streams along the coast. It is unknown how many Tidewater gobies may potentially be affected by the 2007 Levee Repair Project (which is expected to impact no more than 0.6 acres or less than 1 percent of proposed critical habitat for the species), but the USFWS report concludes that project is not likely to jeopardize the continued existence of the Tidewater goby given that the permits issued for the project (including the U.S. Army Corps of Engineers and Humboldt Bay Harbor, Recreation,

and Conservation District permits) include several terms and conditions to minimize project effects on the species. These include using erosion control devices such as silt fences, floating turbidity curtains, *etc.* for all repair activities, and surveying for and excluding any Tidewater gobies found prior to installation of any temporary ditch crossing.

In addition to the mitigation measures and BMPs listed above, the applicant has been issued several permits and associated authorizations for the project that contain conditions of approval or recommendations to avoid or minimize impacts to coastal resources and the environment (see “other approvals” listed on page 2). These documents are attached in Exhibit Nos. 6, 7, and 8.

**B. Permit Authority, Extraordinary Methods of Repair & Maintenance**

Coastal Act Section 30610(d) generally exempts from Coastal Act permitting requirements the repair or maintenance of structures that does not result in an addition to, or enlargement or expansion of the structure being repaired or maintained. However, the Commission retains authority to review certain extraordinary methods of repair and maintenance of existing structures that involve a risk of substantial adverse environmental impact as enumerated in Section 13252 of the Commission regulations. Section 30610 of the Coastal Act provides, in relevant part, the following:

*Notwithstanding any other provision of this division, no coastal development permit shall be required pursuant to this chapter for the following types of development and in the following areas: . . .*

*(d) Repair or maintenance activities that do not result in an addition to, or enlargement or expansion of, the object of those repair or maintenance activities; provided, however, that if the commission determines that certain extraordinary methods of repair and maintenance involve a risk of substantial adverse environmental impact, it shall, by regulation, require that a permit be obtained pursuant to this chapter.* [Emphasis added]

Section 13252 of the Commission administrative regulations (14 CCR 13000 *et seq.*) provides, in relevant part, the following:

*(a) For purposes of Public Resources Code section 30610(d), the following extraordinary methods of repair and maintenance shall require a coastal development permit because they involve a risk of substantial adverse environmental impact:...*

*(3) Any repair or maintenance to facilities or structures or work located in an environmentally sensitive habitat area, any sand area, within 50 feet of the edge of a coastal bluff or environmentally sensitive habitat area, or within 20 feet of coastal waters or streams that include:*

(A) *The placement or removal, whether temporary or permanent, of rip-rap, rocks, sand or other beach materials or any other forms of solid materials;*

(B) *The presence, whether temporary or permanent, of mechanized equipment or construction materials.*

*All repair and maintenance activities governed by the above provisions shall be subject to the permit regulations promulgated pursuant to the Coastal Act, including but not limited to the regulations governing administrative and emergency permits. The provisions of this section shall not be applicable to methods of repair and maintenance undertaken by the ports listed in Public Resources Code section 30700 unless so provided elsewhere in these regulations. The provisions of this section shall not be applicable to those activities specifically described in the document entitled Repair, Maintenance and Utility Hookups, adopted by the Commission on September 5, 1978 unless a proposed activity will have a risk of substantial adverse impact on public access, environmentally sensitive habitat area, wetlands, or public views to the ocean....*  
[Emphasis added.]

The proposed amended development is a repair and maintenance project because it does not involve an addition to or enlargement of the levee. Although certain types of repair projects are exempt from CDP requirements, Section 13252 of the regulations requires a coastal development permit for extraordinary methods of repair and maintenance enumerated in the regulation. The proposed 2007 Levee Repair Project involves the placement of construction materials and removal and placement of solid materials within 20 feet of coastal waters. In a few locations, the proposed work will occur either directly within or adjacent to an environmentally sensitive habitat area (rare plant habitat). Therefore, the proposed project requires a coastal development permit under Sections 13252(a)(1) of the Commission regulations.

In considering a permit application for a repair or maintenance project pursuant to the above-cited authority, the Commission reviews whether the proposed *method* of repair or maintenance is consistent with the Chapter 3 policies of the Coastal Act. The Commission's evaluation of such repair and maintenance projects does not extend to an evaluation of the conformity with the Coastal Act of the underlying existing development.

The repair and maintenance of levees can have adverse impacts on coastal resources, in this case primarily bay waters and the inboard seasonal wetlands, and in some areas rare plant habitat, if not properly undertaken with appropriate mitigation. At all proposed repair sites, the applicant proposes to maintain the levees in their existing footprints by repairing eroded areas with clean fill material similar to the existing earthwork and replacing outboard armoring as needed to prevent erosion. The methods proposed for maintaining the existing system are typical of levee maintenance statewide. The



applicant has included a number of mitigation measures as part of its proposal such as halting work in the event that any cultural resources are encountered until the significance of the find can be assessed by a qualified archaeologist, various BMPs for avoiding and minimizing potential water quality impacts, and measures to avoid or minimize impacts to ESHAs. These measures and others proposed by the applicant in their application are appropriate; however, additional measures are also needed to further avoid, as necessary, or minimize impacts to water quality, wetlands, and ESHAs. The conditions required to meet this standard are discussed in the Findings in the following sections. Therefore, as conditioned in these Findings, the Commission finds that the proposed permit amendment is consistent with the Chapter 3 policies of the Coastal Act.

### **C. Public Access**

This proposed amended development is located between the first public road and the sea (see Exhibit No. 2). Section 30604(c) of the Coastal Act requires that every coastal development permit issued for development between the first public road and the sea “*shall include a specific finding that the development is in conformity with the public access and public recreation policies of Chapter 3 (commencing with Section 30200).*”

#### **Coastal Act Policies:**

Section 30210 of the Coastal Act states the following:

*In carrying out the requirement of Section 4 of Article X of the California Constitution, maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the people consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resource areas from overuse.*

Section 30211 of the Coastal Act states the following:

*Development shall not interfere with the public's right of access to the sea where acquired through use or legislative authorization, including, but not limited to, the use of dry sand and rocky coastal beaches to the first line of terrestrial vegetation.*

Section 30212 of the Coastal Act states the following:

*(a) Public access from the nearest public roadway to the shoreline and along the coast shall be provided in new development projects except where (1) it is inconsistent with public safety, military security needs, or the protection of fragile coastal resources, (2) adequate access exists nearby, or (3) agriculture would be adversely affected. Dedicated access way shall not be required to be opened to public use until a public agency or private association agrees to accept responsibility for maintenance and liability of the access way.*

- (b) *For purposes of this section, "new development" does not include:*
- (1) *Replacement of any structure pursuant to the provisions of subdivision (g) of Section 30610.*
  - (2) *The demolition and reconstruction of a single-family residence; provided, that the reconstructed residence shall not exceed either the floor area, height or bulk of the former structure by more than 10 percent, and that the reconstructed residence shall be sited in the same location on the affected property as the former structure.*
  - (3) *Improvements to any structure which do not change the intensity of its use, which do not increase either the floor area, height, or bulk of the structure by more than 10 percent, which do not block or impede public access, and which do not result in a seaward encroachment by the structure.*
  - (4) *The reconstruction or repair of any seawall; provided, however, that the reconstructed or repaired seawall is not seaward of the location of the former structure.*
  - (5) *Any repair or maintenance activity for which the commission has determined, pursuant to Section 30610, that a coastal development permit will be required unless the commission determines that the activity will have an adverse impact on lateral public access along the beach.*

*As used in this subdivision, "bulk" means total interior cubic volume as measured from the exterior surface of the structure.*

- (c) *Nothing in this division shall restrict public access nor shall it excuse the performance of duties and responsibilities of public agencies which are required by Sections 66478.1 to 66478.14, inclusive, of the Government Code and by Section 4 of Article X of the California Constitution. [Emphasis added.]*

The access policies cited above are those relevant to the proposed amended development and direct the Commission to generally require maximum public access in new development unless the access would be inconsistent with public safety, resource protection, private property rights, or military security needs (§30210 and §30212) or would be otherwise exempt from providing access by statute [§30212(b)(5)]. Coastal Act Section 30211 requires that new development shall not interfere with existing public access that has been acquired either by use or through legislative authorization.

Consistency Analysis:

As stated above, the proposed amended development is for repair and maintenance of a

pre-Coastal Act levee system. Ordinarily, routine repair and maintenance is an exempt activity under Coastal Act Section 30610(d), and thus no coastal development permit would be required. Certain repair and maintenance activities are, however, excepted from this general exemption by regulation, as authorized by Section 30610(d), because they may “*involve the risk of substantial adverse environmental impact.*” The Commission’s regulations identify repair and maintenance activities performed near the shoreline and/or within an ESHA and/or adjacent to an ESHA (as proposed by this permit amendment application) as needing to obtain coastal development permits and are not exempt under Section 30610(d) [CCR, Title 14, Sec. 13252(a)(3)]. However, because repair and maintenance is not considered new development for purposes of Section 30212, Coastal Act Section 30212(b)(5) excludes these repair and maintenance activities from Coastal Act access requirements unless the Commission “*determines that the activity will have an adverse impact on lateral beach access.*”

The proposed 2007 Levee Repair Project would have no impact on lateral beach access because the proposed work would be accomplished within the existing footprint of the levees, staging areas are located outside of any access or access points, and because there is no beach adjacent to the levees. The project is, therefore, consistent with the requirements of Sections 30210 and 30212.

Coastal Act Section 30211 also requires new development not to interfere with existing access. While exempt from this policy as discussed above, the Commission notes that the levee system has not been used by the public to gain access to the shores of Humboldt Bay and Mad River Slough during its long existence, except by permission of the owners.

In conclusion, the proposed amended development is not considered new development for the purposes of application of the public access policies of the Coastal Act because it is a repair and maintenance activity that would not adversely affect lateral beach access and is therefore consistent with the policy direction found in Section 30212.

#### **D. Water Quality**

The Coastal Act contains policies requiring the protection of coastal waters to ensure biological productivity and to protect public health and water quality. New development must not adversely affect these values and should help to restore them when possible.

##### Coastal Act Policies:

Section 30231 of the Coastal Act states the following:

*The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion*

*of ground water supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.*

Coastal Act Section 30233 states the following:

*(a) The diking, filling, or dredging of open coastal waters, wetlands, estuaries, and lakes shall be permitted in accordance with other applicable provisions of this division, where there is no feasible less environmentally damaging alternative, and where feasible mitigation measures have been provided to minimize adverse environmental effects, and shall be limited to the following:*

- (1) New or expanded port, energy, and coastal-dependent industrial facilities, including commercial fishing facilities.*
- (2) Maintaining existing, or restoring previously dredged, depths in existing navigational channels, turning basins, vessel berthing and mooring areas, and boat launching ramps.*
- (3) In open coastal waters, other than wetlands, including streams, estuaries, and lakes, new or expanded boating facilities and the placement of structural pilings for public recreational piers that provide public access and recreational opportunities.*
- (4) Incidental public service purposes, including but not limited to, burying cables and pipes or inspection of piers and maintenance of existing intake and outfall lines.*
- (5) Mineral extraction, including sand for restoring beaches, except in environmentally sensitive areas.*
- (6) Restoration purposes.*
- (7) Nature study, aquaculture, or similar resource dependent activities.*

*(b) Dredging and spoils disposal shall be planned and carried out to avoid significant disruption to marine and wildlife habitats and water circulation. Dredge spoils suitable for beach replenishment should be transported for such purposes to appropriate beaches or into suitable longshore current systems.*

*(c) In addition to the other provisions of this section, diking, filling, or dredging in existing estuaries and wetlands shall maintain or enhance the functional capacity of the wetland or estuary...*

*(d) Erosion control and flood control facilities constructed on watercourses can impede the movement of sediment and nutrients which would otherwise be carried by storm runoff into coastal waters. To facilitate the continued delivery of these sediments to the littoral zone, whenever feasible, the material removed from these facilities may be placed at appropriate points on the shoreline in accordance with other applicable provisions of this division, where feasible mitigation measures have been provided to minimize adverse environmental effects. Aspects that shall be considered before issuing a coastal development permit for such purposes are the method of placement, time of year of placement, and sensitivity of the placement area.*

The proposed 2007 Levee Repair Project would take place on levees located immediately adjacent to Arcata Bay and Mad River Slough on the outboard side and seasonal wetlands on the inboard side. The project involves soil disturbance, which could increase sedimentation in the bay, slough, and wetlands. Coastal Act Section 30231 protects the quality of coastal waters, streams, and wetlands through, among other means, controlling runoff. Grading and soil disturbance can result in the discharge of sediment into site runoff, which, upon entering coastal waters, increases turbidity and adversely affects fish and other sensitive aquatic species. Sediment is considered a pollutant that affects visibility through the water, and affects plant productivity, animal behavior (such as foraging) and reproduction, and the ability of animals to obtain adequate oxygen from the water. In addition, sediment is the medium by which many other pollutants are delivered to aquatic environments, as many pollutants are chemically or physically associated with the sediment particles. Therefore, the proposed 2007 Levee Repair Project has the potential to adversely impact the water quality and biological productivity of coastal waters and wetlands.

#### Consistency Analysis:

Implementation of the proposed 2007 Levee Repair Project would result in the transportation and placement of fill and armoring materials to the sites to be maintained, the use of staging areas for stockpiling of materials to be used for the project and other material to be disposed of (excess fill, *etc.*), and the removal of vegetation by mechanical mowing equipment in the process of preparing levee sites for repair/maintenance. Unless appropriate protocols are followed, all of these activities could result in various adverse impacts to water quality, seasonal wetlands, or sensitive areas from, for example, fuel or oil spills, improper storage of materials in or adjacent to sensitive areas, increased turbidity, installation of temporary access roads and staging areas through the seasonal wetlands, *etc.* Several sensitive resources, including seasonal wetlands, Tidewater goby, anadromous fish species, and rare salt marsh plants (which are discussed below and in Sections IV-E and IV-F), could potentially be adversely affected as a result of project effects on water quality.

The 2007 Levee Repair Project protocols proposed by the applicant include a number of measures to protect water quality, including the use of geotextile fabric between fill and

armoring to reduce migration of fill into bay and slough waters, the consistent use of siltation fences and other erosion control devices (as appropriate) at work sites to reduce discharges, proper disposal of abandoned or excess materials and spoils to appropriate off-site disposal facilities, a prohibition on the storage of any excess materials within any wetland, including the transitional agricultural lands (except for temporary storage in designated staging areas), spill prevention measures, and other protocols as described in the project description and agency approvals/recommendations for the project. In general, the protocols proposed/recommended are appropriate to protect water quality. However, in a couple of instances certain measures are proposed that do not meet current standards, and some protocols proposed are incomplete or do not go far enough to assure water quality protection.

First, one of two proposed methods for installing access roads and staging areas is not the least environmentally damaging feasible alternative. This method involves removing the top 6 inches of topsoil from up to 8,000 linear feet of temporary access roads and 100,000 square feet of staging areas (four 25,000 ft<sup>2</sup> areas), for a total impact of approximately 4.5 acres of seasonal wetlands (diked former tidelands). Topsoil is proposed to be stockpiled and kept moist for the duration of construction activities. Temporary access roads and staging areas would be surfaced with 8 inches of redwood bark over road stabilization fabric, an average of 6 inches of road base, or an equivalent stabilization method. Following completion of construction activities in the area, road surfacing materials would be removed, topsoil would be reapplied, and areas would be tilled and reseeded.

A less environmentally damaging feasible alternative method for minimizing impacts to seasonal wetlands due to temporary access road and staging area installation is the applicant's other proposed alternative. This alternative would not involve excavation and removal of the top 6 inches of soil, which could adversely impact wetland soils, hydrology, and vegetation characteristics. Instead, road surfacing materials (fabric, bark and/or road base, *etc.*) would be placed directly on top of the existing ground (seasonal wetlands) and then removed upon completion of construction activities in the area. Temporarily impacted wetlands would then be tilled (decompacted) and reseeded as necessary. This method is less environmentally damaging because it does not unnecessarily disturb 4.5 acres of wetland soils and vegetation through excavation, stockpiling, and replacement of topsoil. Instead, impacts to the soil and vegetation are minimized, and the areas would be fully restored to pre-project conditions following the temporary impacts.

Second, one of two proposed methods for temporary ditch crossings is not the least environmentally damaging feasible alternative. This method involves installing a culvert within the ditch (placed over a temporary fabric filter), and then placement of temporary imported fill for the crossing (see Figure 7 of Exhibit No. 3). The temporary culvert crossing is proposed to remain in place for a maximum of 30 days. Materials used in crossing construction are proposed to be placed on top of the levee (without side casting) or removed to dispose of at an authorized location.

A less environmentally damaging feasible alternative method for minimizing impacts to ditch wetlands due to temporary crossing installation is the applicant's other proposed alternative. This alternative would not involve culvert or fill placement within wetland ditches. Instead, a temporary bridge would be placed over ditches to allow crossing (see Figure 8 of Exhibit No. 3). Any temporary bridge crossing is proposed to remain in place for a maximum of 30 days. This method is less environmentally damaging because it does not unnecessarily place fill in ditch wetlands, which, if not completely removed following construction, could adversely affect water quality.

In each case discussed above, the use of the less environmentally damaging alternative methods is feasible and would (1) minimize temporary impacts to seasonal wetlands by not unnecessarily disturbing the wetland soils and vegetation through excavation, stockpiling, and replacement of topsoil (but instead just placing protective fabric beneath the road surfacing material and then removing the materials completely upon project completion and restoring the wetland soils beneath through tilling and reseedling as necessary), and (2) avoid the need to place fill in the ditch wetlands (by simply using temporary bridges rather than temporary culverts and imported fill material). Therefore, staff recommends adding Special Condition Nos. 3-a and 3-b to ensure that the permittee undertakes development in accordance with the least environmentally damaging methods described above. Special Condition Nos. 3-c, 3-d, and 3-e also require post-construction restoration and monitoring to ensure that the seasonal wetlands temporarily impacted by project activities will be fully restored to pre-project conditions, or remedial actions will be required.

Finally, the protocols proposed by the applicants also are incomplete in certain other areas in terms of assuring water quality protection. For example, the proposed erosion control measures are not specific enough or do not go far enough to assure that no construction materials or spills enter the bay or slough, that all construction debris is properly disposed of, and that erosion control measures are effectively in place for the duration of project activities. Therefore, staff recommends Special Condition Nos. 3-f through 3-o, which specify various construction protocols that must be implemented for the duration of the project, including (3-f) heavy equipment shall not operate in the bay or wetted channel; (3-g) no construction materials, debris, or waste shall be placed where it may be subject to entering coastal waters or wetlands; (3-h) all construction debris shall be removed and disposed of in an upland location at an approved disposal facility; (3-i) construction activities shall be restricted to the dry season period of April 15 through October 15; (3-j) construction activities shall be conducted during low tide or limited to areas above mean high water; (3-k) during construction, all trash shall be properly contained, removed, and disposed of regularly and properly; (3-l) any debris discharged into coastal waters shall be recovered as soon as possible; (3-m) any fueling and maintenance of construction equipment shall occur outside of sensitive areas or within designated staging areas; (3-n) hazardous materials management equipment shall be ready and available on-site and a professional clean-up/remediation service shall be locally available on call if necessary; and (3-o) all temporary access roads and staging areas shall be limited to the locations and sizes specified in the permit amendment

application. Additionally, Special Condition Nos. 3-p through 3-r specify standards for armoring rock, fill material, and placement of materials. Furthermore, staff also recommends Special Condition No 4, which enumerates various erosion control procedures to be implemented, such as (a) the use of geotextile fabric between the structural fill and the levee and the placement of the riprap to reduce or minimize the amount of erosion that may otherwise occur; (b) ensuring that effective erosion control measures are in place at all times during construction, (c) protecting and stabilizing stockpiled materials and exposed soils with proper erosion control devices; (d) winterizing work sites at the end of each day when significant rains are forecast; (e) reseeding, mulching, or otherwise stabilizing exposed soils after project completion and before the close of the seasonal work window, and other measures. Finally, staff recommends Special Condition No. 5, which requires the applicant to submit to the Executive Director for review and approval (prior to the issuance of the permit amendment) a debris disposal plan demonstrating that all materials not suitable for backfill (including concrete, soil and vegetation spoils, other debris, etc.) shall be removed completely from the project area and lawfully disposed of at an approved upland location.

Therefore, the Commission finds that as conditioned to (1) require using the least environmentally damaging methods for temporary access roads, staging areas, and temporary ditch crossings, and to fully restore all impacted wetlands to pre-project conditions; (2) to add specificity to proposed construction protocols; (3) to add specificity to proposed erosion control protocols, and (4) to produce and implement an approved debris disposal plan, the proposed permit amendment is consistent with the direction of Coastal Act Sections 30231 and 30233.

#### **E. Marine Resources and ESHA**

The outboard side of the levee system is adjacent to Arcata Bay and Mad River Slough, and the proposed 2007 Levee Repair Project has the potential to adversely affect marine resources and marine environmentally sensitive habitat areas (ESHA). The following section of the Coastal Act requires that new development maintain, enhance, and, where feasible, restore damaged marine resources and protect environmentally sensitive habitat areas.

#### **Coastal Act Policies:**

Section 30230 of the Coastal Act states the following:

*Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.*



Section 30107.5 of the Coastal Act defines ESHA as follows:

*“Environmentally sensitive area” means any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments.*

Section 30240 of the Coastal Act states the following:

*(a) Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas.*

*(b) Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.*

Consistency Analysis:

The waters of Arcata Bay and Mad River Slough provide habitat for a number of marine species. The U.S. Fish and Wildlife Service’s (USFWS) Formal Consultation for the project (Exhibit No. 7) notes that the proposed project is likely to adversely affect the Federally-listed endangered Tidewater goby (*Eucyclogobius newberryi*) and its proposed critical habitat (up to 0.6 acres). Tidewater goby is a small, short-lived fish that occurs in coastal brackish water habitats such as lagoons, tidal bays, and estuaries of rivers and streams along the coast. According to the USFWS report, threats to the species include upstream water diversion, dredging, pollution, siltation, urban development on adjacent lands, and competition/predation from introduced species. The USFWS issued an Incidental Take Statement anticipating that the proposed project would cause “harassment” (disturbance) of an estimated 200 breeding adults and “harm” (injury or death) to no more than 70 individuals. Nevertheless, the USFWS report concludes that project is not likely to jeopardize the continued existence of the Tidewater goby given that the permits issued for the project (including the U.S. Army Corps of Engineers and Humboldt Bay Harbor, Recreation, and Conservation District permits) include several terms and conditions to minimize project effects on the species. These include using erosion control devices such as silt fences, floating turbidity curtains, *etc.* for all repair activities, and surveying for and excluding any Tidewater gobies found prior to installation of any temporary ditch crossing.

In order to ensure that all feasible mitigation measures designed to minimize impacts to the Tidewater goby in the project area are followed, staff recommends Special Condition No. 6, which requires the use of erosion control devices for all repair activities, immediate removal of any material associated with levee repair work that falls into the

mudflats or inboard ditches, using the temporary bridge design for ditch crossings (rather than temporarily placing culverts and fill into ditches), and surveying for and excluding any gobies found at ditch crossings prior to crossing installation.

Arcata Bay and Mad River Slough also contain Eelgrass (*Zostera marina*) beds, which are recognized as Essential Fish Habitat (EFH) by the U.S. Army Corps of Engineers and meet the definition of ESHA under Coastal Act Section 30107.5 (see below). However, the proposed 2007 Levee Repair Project is not expected to adversely affect Eelgrass beds since no repair methods are proposed (e.g., installation of sheet piling at Repair Site #9, which is not included with this permit amendment application) that could lead to scour and habitat degradation for Eelgrass.

The NOAA-Fisheries Informal Consultation for the project (Exhibit No. 8) notes that although three sensitive anadromous fish species – Southern Oregon/Northern California Coast (SONCC) coho salmon (*Oncorhynchus kisutch*), California Coastal (CC) Chinook salmon (*O. tshawytscha*), and Northern California (NC) steelhead (*O. mykiss*) – all may occur in Arcata Bay and Mad River Slough (rearing habitat and migration corridor), none of these Federally-listed threatened species or their critical habitats are likely to be directly or indirectly affected by the proposed project. This conclusion was based on the assumptions that heavy equipment will not operate in the bay or wetted channel, that all work will occur during the dry season and during low tide or above mean high water, and that sediment control measures will be incorporated into project activities. Therefore, in order to ensure that these mitigation measures are followed, staff recommends Special Condition Nos. 3 and 4 (described above), which specify that these construction and erosion control protocols shall be implemented.

As conditioned, the Commission finds that the proposed permit amendment to allow for the 2007 Levee Repair Project is consistent with Coastal Act Sections 30230 and 30240 in that it incorporates the least environmentally damaging methods feasible as well as all feasible mitigation measures to avoid significant disruption of Tidewater goby habitat values and to maintain marine resources.

In addition to Tidewater goby discussed above, at least two other ESHAs – habitat for Humboldt Bay owl's-clover (*Castilleja ambigua* ssp. *humboldtiensis*) and Point Reyes' bird's-beak (*Cordylanthus maritimus* ssp. *palustris*) – also have the potential to be affected by proposed project activities. Because all of these species are rare, their habitat meets the definition of environmentally sensitive habitat (ESHA) found in Coastal Act Section 30107.5. Therefore, development adjacent to these habitats must also comply with Section 30240(b) of the Coastal Act.

Both Humboldt Bay owl's-clover and Point Reyes bird's-beak are annual, hemiparasitic species in the Broom-rape family (Orobanchaceae) that grow in coastal salt marsh habitats primarily along the North Coast of California. In addition to photosynthesizing, these hemiparasites supplement their nutrient intake by parasitizing the live roots of adjacent salt marsh species. Humboldt Bay owl's-clover plants typically germinate in

late winter to spring and bloom sometime between April and August (often peaking in June). Point Reyes bird's-beak plants are slightly later: on average, germination is in spring and flowering is approximately in July (CNPS 2007). Surveys conducted by the applicant's biologist in 2006 and 2007 discovered approximately 450 and 275 (respectively) Humboldt Bay owl's-clover plants on the levee system within areas that potentially would be impacted by project activities (see Exhibit Nos. 4 and 5). These plants are estimated to represent less than 1 percent of the total population of the species in the surrounding suitable salt marsh habitat (as seen on Exhibit Nos. 4 and 5). For the Point Reyes bird's-beak, 2006 surveys found a total of five plants in potential impact areas; 2007 surveys for the species have yet to be conducted (since it is not yet seasonally appropriate). It is expected that the potential number of Point Reyes bird's-beak plants present in impact areas will total less than 1 percent of the population of the species in the surrounding salt marsh habitat (see Exhibit No. 5). Population numbers of each species normally fluctuate from year to year, since, as annuals, germination rates are dependent on a number of environmental factors. In general, both species are threatened by development, nonnative plants, and other causes (CNPS 2007).

The applicant proposes several measures to minimize impacts to rare plant ESHAs in the project area. These measures are detailed in the rare plant mitigation plan (Exhibit No. 5) and include (1) conducting seasonally appropriate pre-construction surveys of the Jackson Ranch levee and the Arcata levee east of site #58 for both species; (2) delaying construction activities on the Jackson Ranch levee and the Arcata levee east of site #58 until after the owl's-clover and bird's-beak plants have died back/set seed (in July or early August); (3) collection and conservation of seed from any individuals observed growing in an area of potential impact; (4) transplantation/distribution of seed in suitable habitat nearby; and (5) pre- and post-construction monitoring of rare plants located immediately adjacent to the construction site to document any impacts that might occur as a result of project activities. The proposed plan for collection and distribution of the seeds to nearby marsh habitat would mimic the natural process that would occur if the project were not being conducted. The Humboldt Bay Owl's Clover and Point Reyes Bird's Beak are annual plants. Individual plants die off each year, and the species depend on dispersal of the seeds from plants by wind and other means to suitable habitat areas nearby where the seeds can grow into new individual plants. As explained in the rare plant mitigation plan, it is not feasible to monitor with confidence the success of the seeds themselves that are conserved and transplanted/distributed since the species grow in a tidal environment in which the tiny seeds may be carried with tidal flow far from their original distribution point. Therefore, the applicant does not propose success standards or monitoring for the transplanted/distributed seeds.

The Commission finds that the proposed rare plant mitigation plan will prevent significant disruption of habitat values and retain marine resources consistent with Coastal Act Sections 30240(a) and 30230. To ensure that all feasible mitigation measures designed to minimize impacts to the rare plant ESHAs in the project area are followed, staff recommends Special Condition No. 7, which requires submittal of a final mitigation plan for the review and approval of the Executive Director that provides for

implementation of the mitigation measures listed above. As discussed above in the water quality analysis, the applicant is also required to fully restore the seasonal wetlands that will be temporarily impacted due to the installation of access roads and staging areas for the project. Special Condition No. 3 requires that at the completion of project activities the permittee must decompact and reseed the area with regionally appropriate native species. To help in the establishment of vegetation, rodenticides are sometimes used to prevent rats, moles, voles, gophers, and other similar small animals from eating the newly planted saplings. Certain rodenticides, particularly those utilizing blood anticoagulant compounds such as brodifacoum, bromadiolone and diphacinone, have been found to poses significant primary and secondary risks to non-target wildlife present in urban and urban/ wildland areas. As the target species are preyed upon by raptors or other environmentally sensitive predators and scavengers, these compounds can bio-accumulate in the animals that have consumed the rodents to concentrations toxic to the ingesting non-target species. Therefore, to minimize this potential significant adverse cumulative impact to environmentally sensitive wildlife species, the Commission attaches Special Condition No. 3-D prohibiting the use of specified rodenticides on the property governed by CDP No. 1-03-004.

As conditioned, the Commission finds that the proposed amended development for the 2007 Levee Repair Project is consistent with Coastal Act Sections 30230 and 30240 in that it retains marine resources consistent with Section 30230 and will avoid significant disruption of habitat values consistent with Section 30240.

#### **F. Archaeological Resources**

Coastal Act Section 30244 provides protection of archaeological and paleontological resources and requires reasonable mitigation where development would adversely impact such resources. Because the levee system was originally constructed around 1880 from Humboldt Bay materials, it is possible that historic or prehistoric archaeological resources occur in the area. The project proposes to use heavy equipment to excavate and remove fill material from the area, and archaeological resources embedded in the levees could be impacted through the course of construction activities.

The proposed project area is located within the ethnographic territory of the Wiyot Indians, who lived almost exclusively in villages along the protected shores of Humboldt Bay and near the mouths of the Eel and Mad Rivers. Several Wiyot villages are known to have occurred along the shores of Arcata Bay in the general vicinity of the project area. The relatively larger and sedentary populations of these villages engaged in an economy of salmon fishing, marine-mammal hunting, shellfish gathering, and seasonal excursions inland for acorns. Pioneers from the gold rush era of the mid-1800's subsequently settled in the Arcata Bay region, and small farms that included gardens, pastures, and animal husbandry were established in the Bayside area by the 1860s. Lumber operations began in the area around 1875, including a logging and quarrying railroad that ran through the Jacoby Creek region to Arcata Bay.

To ensure protection of any cultural resources that may be discovered during construction of the proposed project, staff recommends Special Condition No. 8, which requires that if an area of cultural deposits is discovered during the course of the project, all construction must cease and a qualified cultural resource specialist must analyze the significance of the find. To recommence construction following discovery of cultural deposits, the permittee is required to submit a supplementary archaeological plan for the review and approval of the Executive Director to determine whether the changes are *de minimis* in nature and scope, or whether an amendment Coastal Development Permit No. 1-03-004 is required.

Therefore, the Commission finds that the proposed project, as conditioned, is consistent with Coastal Act Section 30244, as the development will not adversely impact archaeological resources.

**G. Other Agency Approval**

The proposed 2007 Levee Repair Project requires review and approval by the U.S. Army Corps of Engineers. Pursuant to the Federal Coastal Zone Management Act, any permit issued by a federal agency for activities that affect the coastal zone must be consistent with the coastal zone management program for that state. Under agreements between the Coastal Commission and the U.S. Army Corps of Engineers, the Corps will not issue a permit until the Coastal Commission approves a federal consistency certification for the project or approves a permit. To ensure that the project ultimately approved by the Corps is the same as the project authorized herein, staff recommends Special Condition No. 10, which requires the applicant to submit to the Executive Director evidence of approval of the project by the U.S. Army Corps of Engineers prior to the commencement of construction. The conditions require that any project changes resulting from the Corps approval not be incorporated into the project until the applicant obtains any necessary (additional) amendments to Commission CDP No. 1-03-004.

To further ensure that the permittee undertakes development in accordance with the project as authorized herein, staff recommends Special Condition No. 11, which gives Commission staff the right, upon 24-hours notification to the permittee, to enter and inspect the project area for the purpose of determining condition compliance.

**H. California Environmental Quality Act (CEQA)**

The Humboldt Bay Harbor, Recreation, and Conservation District acted as the lead agency for the proposed 2007 Levee Repair Project. As such, the District filed a Notice of Exemption under Section 15269 of the CEQA Guidelines and issued an Administrative Permit for the proposed project (Exhibit No. 6).

Section 13096 of the California Code of Regulations requires that a specific finding be made in conjunction with coastal development permit applications showing the application to be consistent with any applicable requirements of CEQA. Section

21080.5(d)(2)(A) of CEQA prohibits a proposed development from being approved if there are feasible alternatives or feasible mitigation measures available which would substantially lessen any significant adverse effect which the activity may have on the environment.

The Commission incorporates its findings on Coastal Act consistency at this point as if set forth in full, including all associated environmental review documentation and related technical evaluations incorporated-by-reference into this staff report. Those findings address and respond to all public comments regarding potential significant adverse environmental effects of the project that were received prior to preparation of the staff report. As discussed above, the proposed project has been conditioned to be consistent with the policies of the Coastal Act. As specifically discussed in these above findings, which are hereby incorporated by reference, mitigation measures that will minimize or avoid all significant adverse environmental impacts have been required. As conditioned, there are no other feasible alternatives or feasible mitigation measures available that would substantially lessen any significant adverse impacts that the activity may have on the environment. Therefore, the Commission finds that the proposed project, as conditioned to mitigate the identified impacts, can be found consistent with the requirements of the Coastal Act and to conform to CEQA.

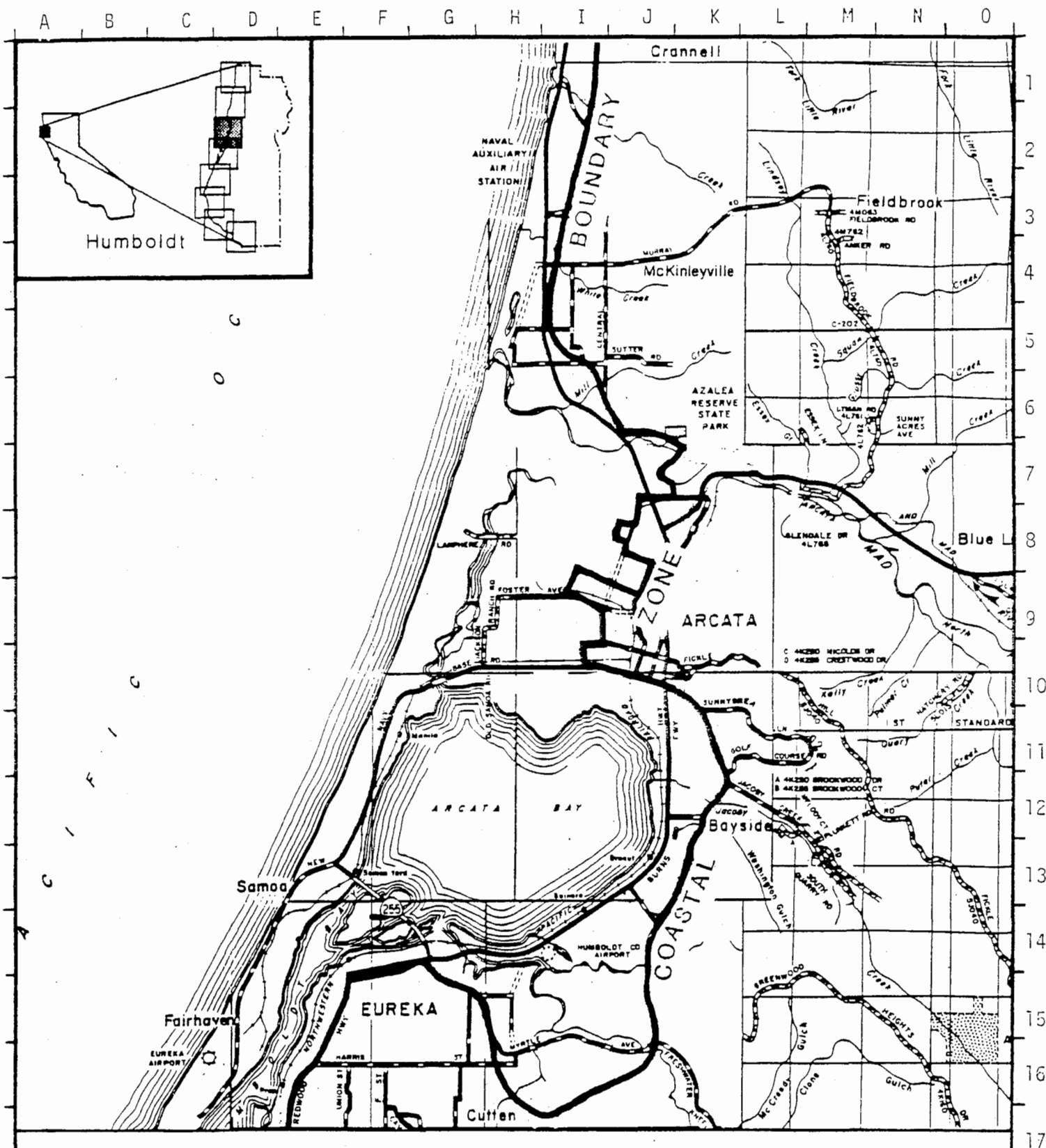
## **V. EXHIBITS**

- 1) Location Map
- 2) Vicinity Maps
- 3) Project Description
- 4) Botanical Report
- 5) Rare Plant Mitigation Plan
- 6) Harbor District Permit
- 7) U.S. Fish & Wildlife Service Formal Consultation
- 8) NOAA-Fisheries Informal Consultation
- 9) Staff Report for Commission CDP No. 1-03-004

## ATTACHMENT A

### **Standard Conditions:**

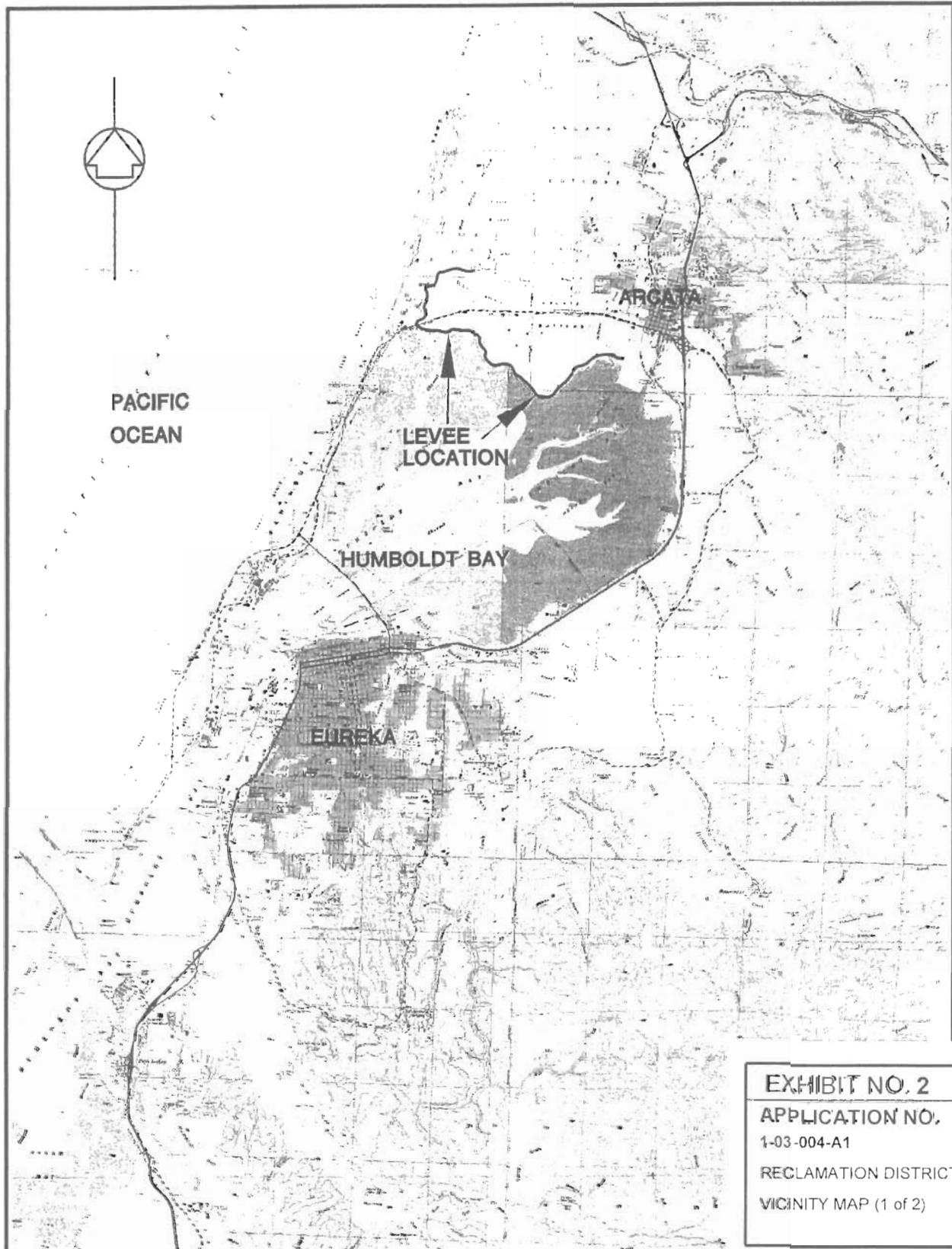
1. Notice of Receipt and Acknowledgment. The permit is not valid and development shall not commence until a copy of the permit, signed by the permittee or authorized agent, acknowledging receipt of the permit and acceptance of the terms and conditions, is returned to the Commission office.
2. Expiration. If development has not commenced, the permit will expire two years from the date on which the Commission voted on the application. Development shall be pursued in a diligent manner and completed in a reasonable period of time. Application for extension of the permit must be made prior to the expiration date.
3. Interpretation. Any questions of intent or interpretation of any condition will be resolved by the Executive Director of the Commission.
4. Assignment. The permit may be assigned to any qualified person, provided assignee files with the Commission an affidavit accepting all terms and conditions of the permit.
5. Terms and Conditions Run with the Land. These terms and conditions shall be perpetual, and it is the intention of the Commission and the permittee to bind all future owners and possessors of the subject property to the terms and conditions.





**LOCATION MAP  
RECLAMATION DISTRICT 768**

SCALE: 1" = 10,000' ±



**EXHIBIT NO. 2**

**APPLICATION NO.**

1-03-004-A1

RECLAMATION DISTRICT 768

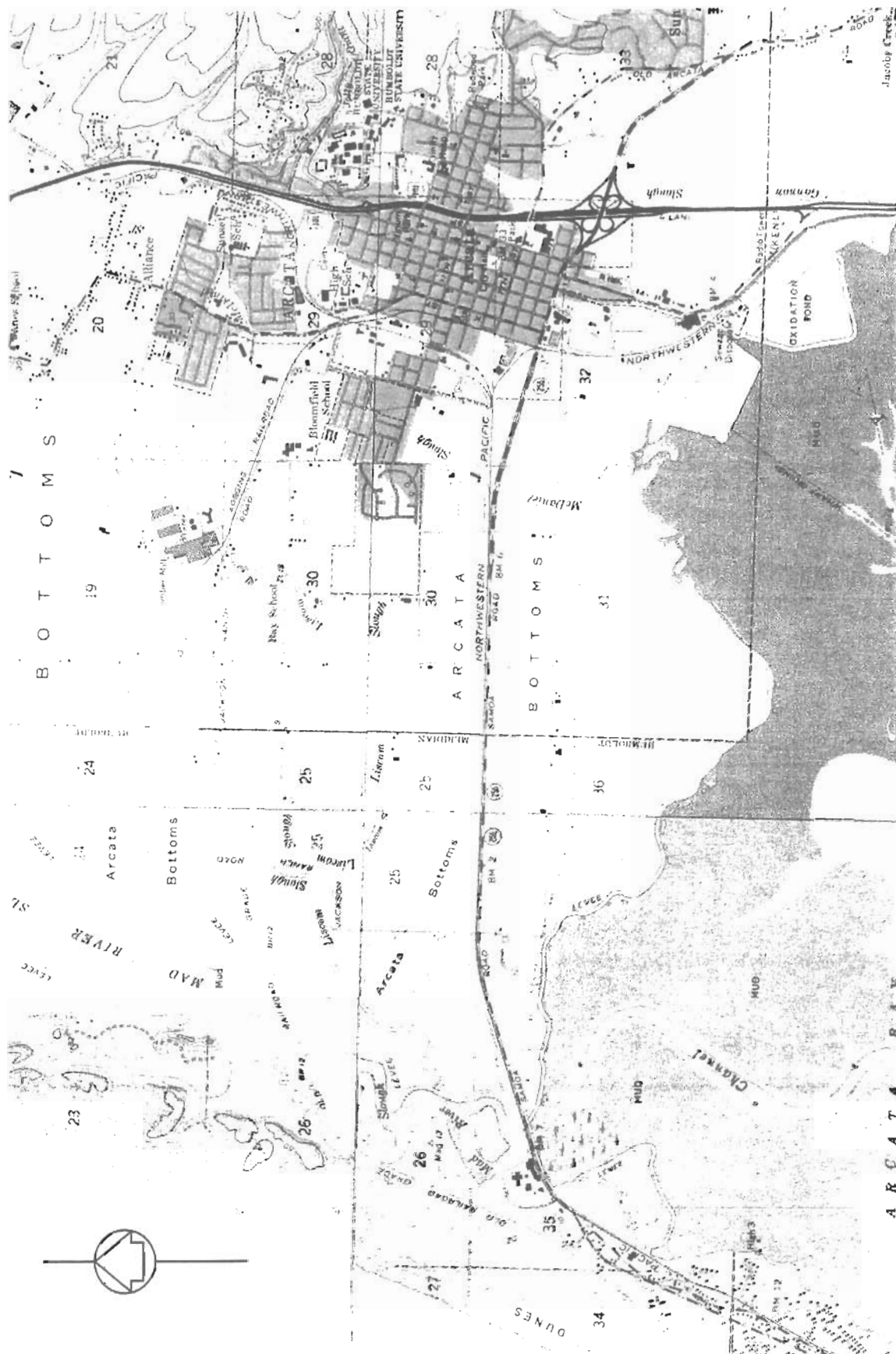
VICINITY MAP (1 of 2)



2 of 2

VICINITY MAP

SCALE: 1" = 3000' ±



LEVEES WEST OF ARCATA

OSCAR LARSON & ASSOCIATES



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Melissa Kraemer  
California Coastal Commission  
710 E Street, Suite 200  
Eureka CA 95501

Reply to: OL:062807:SEC:6907.1

28 June 2007

Subject: Updated project description for Reclamation District 768 levee repairs

Dear Mrs. Kraemer:

Per our conversations today, the Coastal Commission (CCC) has decided to remove the repairs to site #9 from the Reclamation District 768's 2007 Levee Repair Project application which is to be addressed at the July 13<sup>th</sup>, 2007 hearing. This will allow the CCC time to request additional information on the relationship between the proposed sheet piling, the proposed rock revetment, and the adjacent salt marsh habitat. As a result, the CCC has requested that the applicant provide an updated project description which reflects the removal of site #9 from the 2007 levee repair project.

A previously submitted version of the project description dated June 12, 2007 (on file at CCC) reflects the currently proposed project with repairs to site #9 omitted. This project description should be used in preparing the staff report for the July 13<sup>th</sup> hearing.

Please advise us as to any further information that may be required. Thank you for your assistance.

Sincerely,

OSCAR LARSON & ASSOCIATES

Signature on File

STEFAN C. LARSON  
Environmental Analyst/Planner

SEC:ikmy

Copy: Reclamation District 768  
File

**EXHIBIT NO. 3**

**APPLICATION NO.**

1-03-004-A1

RECLAMATION DISTRICT 768

PROJECT DESCRIPTION

(1 of 27)

## **Reclamation District 768 – 2007 Levee Repair Project**

### **June 12, 2007**

### **Project Description**

The purpose of this project is to repair and/or protect  $\pm 7,877$  linear feet ( $\pm 2,401$  meters) of eroded and damaged levee located along the Reclamation District 768's 4.9-mile long levee system along Arcata Bay (the northern portion of Humboldt Bay) and Mad River Slough (see Figure 1 – Reclamation District Map, Figure 2 – Location Map, and Figure 3 – Vicinity Map). Local winter storms from December 30, 2005 through January 3, 2006 have resulted in multiple areas of damage to the levee. These damaged areas are in need of immediate repair/restoration to a pre-damage condition. A failure to take action could result in further levee damage, levee breaches, the potential loss of high-grade soil types, saltwater intrusion into agricultural fields and freshwater wetlands, and the inundation of public roads (Jackson Ranch Road and Old Samoa Road).

Originally, 20,212 feet of levee was damaged by storms. Between November 2006 and March 2007, parts of the repairs were completed during emergency work which was approved by the Humboldt County Building Department, as well as other permitting agencies. This project description describes the repairs that are proposed for 2007.

The project is to be funded in part through the Federal Emergency Management Agency (FEMA) Public Assistance Program and in part through the State of California Office of Emergency Services (OES).

### **Project Background**

High tides and winds in excess of 90 mph from December 30, 2005 through January 3, 2006 led to overtopping, accumulation of debris and the erosion of levees under the jurisdiction of Reclamation District 768. The 3.5 mile long Arcata Bay levee is located south of State Highway 255 along Arcata Bay. The 1.4 mile long Jackson Ranch levee is located north of State Highway 255 adjacent to the Mad River Slough. The levees were originally constructed with Humboldt Bay mud and are 20 to 24 feet wide at the base and 10 to 12 feet wide at the top. Levee height ranges from approximately 7 to 10 feet above mean sea level.

Reclamation District 768 was established in 1904 and consists of 1499 acres of land. The District is responsible for the maintenance of the levees. Currently, the property in the District is owned by 15 separate owners, including private citizens, the City of Arcata, Humboldt State University, the California Department of Fish and Game (DFG) and Arcata Lodge #106. The publicly owned property is used primarily as marshland and wildlife habitat. The privately owned lands and the Arcata Lodge property are used as cattle pasture lands.

A major breach of the levees would subject all of the property in the Reclamation District to flooding. State Highway 255 and residential property and public infrastructure in the

southwest portion of the City of Arcata would also be at risk of flooding in the event of a major breach.

The agricultural fields of the Reclamation District represent diked former tidelands of Arcata Bay that were converted to pasture for agricultural purposes after the levee was built around 1880. The fields are considered to be seasonal agricultural wetlands or 'farmed wetlands.' Other jurisdictional wetlands in the project area include the inboard ditches, sloughs, and Arcata Bay and Mad River Slough which are located outside of the levee system. The only uplands on the project site are the levees themselves.

### **Description of Levee Damage**

See attached Table 1 – 'Construction Quantity Breakdown' and Figure 4 – '2007 Levee Repair Map' for detailed 2007 damage descriptions and repair quantities. A general description of the damage is as follows (this description includes all of the original damage sites, not just the damage to be repaired in this project description):

High tides and storms during the event damaged the riprap and fill on the bay side of the Arcata Bay levee at approximately 60 locations and also saturated the levee and caused fissures to develop in the top of the levee near the landward side at three locations. Overtopping of the Jackson Ranch levee resulted in scouring damage to the landward side of the levee and to the side adjacent to the Mad River Slough at 12 locations. The top of the Jackson Ranch levee lost fill averaging one foot deep by 12 feet wide for approximately 6,000 feet. The southwestern portion of the Jackson Ranch levee was nearly breached and suffered extensive damage.

Riprap damage for the 'smaller damage sites' listed in Table 1 consists of a noticeable 'slump' where the riprap has moved and no longer comes to the top of the levee. These sites also exhibit erosion behind the riprap at the top of the levee. The amount of fill estimated lost behind the riprap is less than one cubic yard for these isolated locations.

The sites listed as 'medium damage sites' on Table 1 are very similar to the 'smaller damage sites' excepting that the areas are larger with approximately 2 cubic yards of fill lost behind the riprap slope at the top of the slope and the amount of slump is greater.

The remaining riprap slope damage sites shown in Table 1 include a length along the top of the levee where the damage has occurred. Some of these sites have similar damage to that described above for a medium damage site, excepting that the damage is continuous for the distance shown. Other areas have much more extensive damage, ranging up to almost total destruction of the entire riprapped area and creation of a near vertical earth slope at the top edge of the levee.

### **Arcata Bay levee**

One section approximately 400 feet long near the center of the Arcata Bay levee did not have existing riprap on the bay side of the levee. Only a portion of the earth slopes here

were eroded. An existing 'mud flat' in Arcata Bay adjacent to this area apparently provided protection to this section of levee.

The easternmost 4,000 feet of the Arcata Bay levee, in the vicinity of McDaniel Slough, also did not have existing riprap. This section of the levee also has an adjacent mud flat that apparently provided protection to the levee. There are a few isolated locations with erosion damage on both the landward side and the slough side of the levee in this section.

Fissures in the top of the levee near the landward or northerly edge were observed in three locations. These fissures vary in width from about two inches to less than one-quarter inch in width and are often difficult to see. These fissures are generally in the areas with the most riprap damage and may indicate that the levee was more saturated in these areas.

#### Jackson Ranch levee

The existing Jackson Ranch levee did not have riprap existing on the landward side and had existing riprap at only isolated sections on the side of the levee adjacent to the Mad River Slough. The riprap in these locations is the result of relatively recent repairs, including a levee breach that was repaired in 2005. The riprap at the 2005 breach site was extensively damaged and the other riprapped portions also suffered damage.

The portion of the Jackson Ranch levee from State Highway 255 to approximately 1,000 feet north does not have riprap and suffered almost no damage. An existing mudflat apparently provided protection to the levee in this area. The remainder of the levee suffered erosion on both landward and slough side. The levee was almost breached and the damage is very severe at a location approximately 1,500 feet north of State Highway 255 (damage location #9 on Figure 4). The northeastern 6,000 feet of the levee also shows no vegetation on the top of the levee. An average of one foot of fill is estimated to have been washed away for this 6,000-foot long section.

#### Description of Proposed Work

The applicant proposes approximately 898 yds<sup>3</sup> of excavation (to prepare damaged areas for repair), and proposes to place approximately 3,631 yds<sup>3</sup> of engineered fill and approximately 8,126 yds<sup>3</sup> of rock slope protection (see attached rock slope protection information) for levee repairs. See Figure 4 for levee repair locations. The numbers on Figure 4 refer to repair sites, which correspond with the 'failure or damage area' numbers on Table 1.

There are no culverts or tide gates being installed or repaired as part of this project.

The footprint of the levee will match the original footprint and will not extend into Arcata Bay, the sloughs, or landward wetland areas further than they did originally.

The applicant proposes the following types of repairs:

Tidal Influenced Levee Repair – All debris will be removed, and clearing and grubbing will occur prior to work. The area of damaged levee will be excavated to the lowest point of damage. A level bench will be created and backfilled with engineered fill in 8" lifts maximum. Each lift will be compacted to 90% relative compaction minimum. Type B rock slope protection fabric will be placed on the graded soil slope and anchored at the toe and the top of the levee. 1 ½ feet thickness of light class rock slope protection (CalTrans spec section 72) will be placed on top of the rock slope protection fabric. A layer of class ½ ton rock slope protection (CalTrans spec section 72) will be placed on top of the light class rock slope protection. All nontidal disturbed earth surfaces will be hydroseeded or broadcast seeded (see Figure 5).

Nontidal Levee Repair – All debris will be removed, and clearing and grubbing will occur prior to work. The area of damaged levee will be excavated to lowest point of damage. A level bench will be created and backfilled with engineered fill in 8" lifts maximum. Lifts will be compacted to 90% relative compaction minimum. Areas where nontidal levee slope is greater than or equal to 1:1, coconut/straw erosion blankets will be installed on all disturbed earth surfaces. All nontidal disturbed earth surfaces will be hydroseeded or broadcast seeded (see Figure 6).

#### Clearing and Grubbing, Riprap Removal and Riprap Replacement

The scope of work proposed for this project includes clearing and grubbing (clearance of all vegetation and subsurface root masses on a site in anticipation of grading or construction), removing and disposing of existing broken concrete from all areas to receive riprap slope repair and the importing of new rock for these areas (see attached rock slope protection information). The total amount of material to be removed in clearing and grubbing and debris removal is ±7,127 tons. Existing rock, where present and suitable, will be reused. The broken concrete is unsuitable for use as riprap because it is not of the correct size range and does not meet the required durability and specific gravity requirements for engineered riprap. For undamaged areas, broken concrete will remain in place. Riprap repair includes removal of all material and placement of fabric and a rock 'key' at the base of the levee. The width of the repair area is six feet for a site identified as a 'smaller damage site,' 10 feet for a 'medium damage site,' and of the distance shown for all other sites. Riprap will be used in areas that were damaged and are to be repaired, including areas where riprap did not previously exist. Materials that cannot be reused shall be loaded into trucks and removed to a permitted disposal site.

#### Materials Available

Engineered imported fill material will be used to replace the existing clay/silt fill lost from the top of the Jackson Ranch levee and for repairing the sides of both the Jackson Ranch and the Arcata Bay levees. This material will contain aggregate that is less susceptible to washouts than the existing clay/silt and will be similar to aggregate base material used for roadway construction.



Engineered imported clay/silt fill material will be used in all repair locations. This material will be imported from an approved and permitted source outside of the Reclamation District.

#### Access and Staging Areas

The lands of Reclamation District 768 are accessible from State Highway 255, Jackson Ranch Road, Old Samoa Road, and the Arcata Marsh and Wildlife Sanctuary.

The project will include the placement of temporary access roadways and staging areas for the contractors to store equipment and materials. The land required for these temporary facilities is owned by members of the Reclamation District.

Four temporary staging areas of  $\pm 25,000 \text{ ft}^2$  will be created. The project engineer has identified that  $\pm 25,000 \text{ ft}^2$  will be needed at each staging area to stockpile and sort construction materials and to store heavy equipment such as excavators, backhoes, tracked dumpers, dump trucks, bulldozers, etc. Several types of inbound and outbound levee materials must be stored separately, including debris and unsuitable material to be removed, and engineered backfill, RSP fabric and small and large rock slope protection to be imported. The contractor may also be required to separately stockpile the upper six inches of soil from the staging area, to be reapplied and tilled following removal of the temporary staging areas and access roads. Transfer/haul trucks are used to transport the large quantities of materials to and from the site, and room is needed to load and unload the trucks. During the emergency repairs that were conducted between November 2006 and March 2007, the staging area that was used measured approximately  $26,400 \text{ ft}^2$ . That area was somewhat cramped, but contractors were able to work within it.

Approximately 8,000 linear feet of temporary access roads (12' wide) will be installed to provide access to the levees across the seasonal agricultural wetlands (see Figure 4). Twelve feet width is the minimum required for the heavy equipment and trucks that will be using the temporary roads. Potential impacts to wetland areas from access roads were minimized by using existing roadways when possible and by limiting roadway width to that required for equipment.

The temporary access roads and staging areas will be surfaced with 8" of redwood bark over road stabilization fabric, an average of 6" of road base, or an equivalent stabilization method. Two alternatives are to be considered for how to do this.

One alternative is to remove the top 6" of topsoil from the proposed roadway or staging area locations. This topsoil would be stockpiled onsite and kept moist during the duration of the project to ensure the viability of existing vegetation rhizomes. Surfacing material would be applied where the topsoil was removed. Following completion of the project or when that staging area or section of road is no longer needed for construction activities, the surfacing material would be removed and disposed of at an authorized location. Then the stockpiled topsoil would be reapplied to the roadway or staging area, the area would be tilled and then re-seeded with an agricultural seed mix.



Another alternative is to apply the surfacing material on top of the existing ground. Following levee repairs, the surfacing material would be removed from the temporary access roads and staging areas and the areas would be re-seeded with an agricultural seed mix.

Temporary ditch crossings will be utilized as needed for the levee repair project. Two methods of temporary ditch crossing may be used – culvert ditch crossing (Figure 7) and bridge ditch crossing (Figure 8). Crossings may only be placed in a location where there is an access road adjoining the area in which the crossing is to be placed. The crossing is to be removed within 30 days of the completion of the levee repair activities for which the crossing was constructed. Materials used in constructing the crossing will be placed on top of the levee (without side casting) or removed to an authorized location.

#### Equipment

Tracked or wheeled vehicles may be used. Hand tools and equipment may be used.

#### Best Management Practices

1. Air Quality: Dust suppression measures in the form of watering the work area shall be used on access roads, materials storage areas, and during materials placement. The amount of water used shall not be of such volume as to cause runoff from the top of the levee or outside the boundary of the staging area.
2. Cultural Resources: Should any historic or prehistoric cultural resources be encountered during construction, work shall be halted in the effected area while a qualified archeologist assesses the significance of the find and develops a suitable mitigation plan.
3. Hydrology and Water Quality:
  - a. No refueling of equipment shall occur on the levee. The equipment shall be removed from the levee for refueling. Routine maintenance of equipment is required and no equipment that visually displays signs of leaking fuels, lubricants or similar materials shall be allowed. The equipment shall be repaired or refueled on one of the designated staging areas with spill prevention measures employed or the equipment shall be removed from the site immediately. All refueling and maintenance shall be conducted in compliance with the contractor's Spill Prevention Control and Countermeasure Plan (SPCC), prepared in accordance with 40 CFR §112.
  - b. Construction activities on the levee shall be limited to the times in which the low tides occur, or shall be limited to areas above mean high water. Construction shall not occur outside the construction window of April 15

to October 15. The work shall be done from the top of the levee by loader, backhoe, excavator and dumping trucks. No equipment shall enter the wetted channel of existing drainage courses or tidal areas. The levee shall be contoured to a stable condition before the equipment leaves the site.

- c. All repair or restoration activities of the levee shall include the placement of a geotextile fabric or similar erosion control material between the structural fill of the levee and the placement of riprap. This will reduce or minimize the amount of erosion that would otherwise occur.
- d. Any construction materials that are inadvertently sloughed off into the bay, slough or other wetland areas during construction shall be removed. No fill or construction materials shall be deposited into Arcata Bay or Mad River Slough other than those needed for the levee restoration. The
- e. The structural fill that is to be excavated shall be temporarily placed on the top of the levee or in a staging area and, if suitable, shall be reused as backfill; any other materials that are not reusable as structural fill or riprap will be spread along the top of the levee or removed to an approved disposal site. The portion of the levee that receives this material is to be compacted for road and other access purposes and if needed re-vegetated to minimize erosion potential. Materials that cannot be reused or would not be suitable for placement along the top of the levee shall be loaded into pick-up or dump truck(s) (depending on the volume and nature) and removed to an approved disposal site.
- f. All repair activities that include the removal or replacement of levee materials (whether for structural purposes or protection (riprap)), shall incorporate silt fences, floating turbidity curtains, or equivalent similar structures that meet sediment control requirements to reduce the discharge of materials into the bay, slough or other wetland areas. The devices shall be removed from the repair location following their use. All sediment control devices shall be installed consistent with the requirements of the State Water Resources Control Board NPDES General Permit and the project's Storm Water Pollution Prevention Plan (SWPPP).

#### Wetland Impacts

The placement of materials for the temporary staging areas and temporary access roads will temporarily impact approximately 4.5 acres of seasonal agricultural wetlands, or 'farmed wetlands.' This effect will be temporary and will not have a long-term effect on the wetlands. Following the project, the materials that were placed to create the staging areas and access roads will be removed, the area will be tilled, and an agricultural seed mix will be planted, restoring the areas to their pre-project condition. It is noted that the tilling and replanting of the agricultural fields is an activity which would periodically occur as part of cattle grazing activities in the absence of the project.

Potential impacts to wetland areas from access roads were minimized by using existing roadways when possible and by limiting roadway width to that required for equipment.

No jurisdictional wetlands will be permanently impacted by this project, since the project will not impact areas outside the historic footprint of the levee, will not overspill into wetland areas or the bay, and will incorporate Best Management Practices.

#### Special Status Plants

No special status plants were found within the proposed staging areas or proposed temporary access routes. Use of these grazed agricultural wetlands for the levee repair project is not anticipated to impact any special status plants or important habitat for listed species (Mad River Biologists, June 16, 2006 and Mad River Biologists, August 24, 2006).

Portions of the levee and adjacent salt marsh habitat near the Mad River Slough were found to support a few scattered occurrences of Humboldt Bay owl's-clover (*Castilleja ambigua* ssp. *humboldtiensis*) and Point Reyes bird's-beak (*Cordylanthus maritimus* ssp. *palustris*). Humboldt Bay owl's-clover and Point Reyes bird's-beak are on the California Native Plant Society's List 1B.2, and have special status in California where they are considered fairly endangered. No other special status plants were found (Mad River Biologists, June 16, 2006 and Mad River Biologists, August 24, 2006).

The botanical assessments indicate that with incorporation of the proposed BMPs to avoid sedimentation of the salt marsh habitat within the slough, restricting construction and other activities that cause ground disturbance in the areas where rare plants have been identified until after reproductive individuals die back, and potentially conserving seed from owl's-clover found growing on the levee by transplanting it to adjacent habitats, impacts to Humboldt Bay owl's-clover and Point Reyes bird's-beak are expected to be minimal.

To mitigate for potential impacts to Humboldt Bay owl's-clover and Point Reyes bird's-beak, a botanist shall survey the Jackson Ranch levee and the Arcata levee east of site #58 for these plants during their flowering periods. These are the locations where salt marsh habitat occurs adjacent to the levee. If either species is observed growing on the levee or within the area where the levee is to be rebuilt, then seed will be collected and will be transplanted to suitable habitat nearby. Furthermore, construction activities on Jackson Ranch levee and Arcata levee east of site #58 shall not occur until after Humboldt Bay owl's clover and Point Reyes bird's-beak have died back in July or early August.

#### Section 7 Consultation

Section 7 of the Endangered Species Act outlines the procedures for Federal interagency cooperation to conserve Federally listed species and designated critical habitat. Section 7

consultation with the U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) has been completed.

### Salmonids

Several Federally threatened salmonids occur within Arcata Bay – Southern Oregon/Northern California Coast (SONCC) coho salmon (*Oncorhynchus kisutch*), California Coastal (CC) Chinook salmon (*Oncorhynchus tshawytscha*), and Northern California (NC) steelhead (*Oncorhynchus mykiss*) migrate and rear within Arcata Bay. Arcata Bay and Mad River Slough, adjacent to the project site, may be a migration corridor and may provide rearing habitat for all three listed salmonids. In addition, this area of Humboldt Bay is designated critical habitat for the three listed salmonids.

Pursuant to section 7 of the Endangered Species Act, the U.S. Army Corps of Engineers (USACE) consulted with NOAA's National Marine Fisheries Service (NMFS) on the project. NMFS stated that because heavy equipment will not operate in the bay or wetted channel, and all work will occur during low tide or above mean high water, the project is not expected to result in direct effects to listed salmonids. NMFS also stated that because (1) all repair activities that include the removal or replacement of levee materials will incorporate sediment control; (2) all construction activities on the seaward side of the levee will be limited to low tide or above mean high water; and (3) all work will be conducted during dry weather conditions, NMFS expects sediment delivery to Arcata Bay and Mad River Slough to be insignificant. NMFS concurred with the USACE determination that the proposed project is not likely to adversely affect Federally threatened SONCC coho salmon, CC Chinook salmon, NC steelhead, or their designated critical habitats.

Essential Fish Habitat (EFH) is defined as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." EFH for a number of species exists adjacent to the project site. Pursuant to the Magnuson-Stevens Fishery Conservation and Management Act, USACE also initiated consultation with NMFS on EFH for species managed under the Pacific Coast salmon, Pacific Coast groundfish, and Coastal Pelagic species Fishery Management Plans, and determined that the project would not adversely affect EFH. NMFS agreed with USACE's determination, and therefore, EFH consultation was not warranted.

### Tidewater goby

The federally Endangered tidewater goby (*Eucyclogobius newberryi*) is known to occur within Humboldt Bay and tidewater goby habitat is likely present on the bay side of the levee and in the ditches on the inboard side of the levee. Tidewater gobies were not found within Mad River Slough, but in the system of adjacent channels connected to McDaniel Slough, which is separated from Mad River Slough by tidegates. Gobies were first detected in 1988 by Dr. Camm Swift in the inboard ditch immediately north of the levee at the junction of State Highway 255 and Mad River Slough. This location was again surveyed in either 1999 or 2000 by Dr. Swift, and tidewater gobies were again detected.

In 2006, gobies were found in two tributary channels to the inboard ditch along the levee system near McDaniel Slough (USFWS Biological Opinion, 4/27/07). No critical habitat is designated anywhere along the coast of Humboldt County, although critical habitat was recently proposed for many areas along Humboldt Bay by USFWS, including most of the ditches inboard of the Reclamation District levees.

Pursuant to section 7 of the Endangered Species Act, USACE engaged in formal consultation with U.S. Fish & Wildlife Service (USFWS) on the project. USFWS issued a Biological Opinion based on their review of the project. The USFWS Biological Opinion considered the potential of the project to affect the number and productivity of tidewater gobies in the action area by causing direct mortality of adults or young, temporarily reducing the functional suitability of habitat, and disturbance of breeding or non-breeding adults or young.

The Biological Opinion states that the project may affect the number and productivity of tidewater gobies in the action area by causing direct mortality of adults or young, temporarily reducing the functional suitability of habitat, and disturbing breeding or non-breeding adults or young. An Incidental Take Statement was included by USFWS in their Biological Opinion. The USFWS Biological Opinion concludes that the project is not likely to jeopardize the continued existence of the tidewater goby and is not likely to adversely modify proposed critical habitat (USFWS Biological Opinion, 4/27/07). To further mitigate for potential impacts to the tidewater goby, the following minimization measure is incorporated:

Prior to the construction of a temporary crossing, tidewater gobies will be excluded from the area of impact by using seine netting stretching from substrate to water surface and bank to bank. The netting shall be of knotless mesh of no greater than 0.125" openings in the largest dimension. Netting will be deployed in such a way that it excludes gobies from the construction area and keeps them from entering the construction zone until the structure is in place and all work within wetted channels for the purpose of constructing the crossing has been completed.

#### Timing and Coordination of Contractors

Repair activities will take place within the window of April 15, 2007 to October 15, 2007.

Four separate construction contracts will be used for levee repair work in order to have the work completed as quickly as possible.

#### Figures

Figure 1 – Reclamation District 768 Map

Figure 2 – Location Map

Figure 3 – Vicinity Map

Figure 4 – Levee Repair Map

Figure 5 – Tidal Influenced Levee Repair

Figure 6 – Nontidal Levee Repair

Figure 7 – Temporary Ditch Crossing – Culvert – Typical Cross-Section

Figure 8 – Temporary Ditch Crossing – Bridge – Typical Cross-Section

### **Tables**

Table 1 – Construction Quantity Breakdown

Table 1 - Construction Quantity Breakdown - 2007 Levee Repairs

Failure or Damage Area	Average Levee Height (feet)	Average Top of Damaged Levee Width (feet)	Sideslope (#feet:1)	Length of Damage (feet)	Average Depth of Damage (feet)	Location of Damage	Clearing and Grubbing Required?	Debris Removal Required?	Clear Grub and Debris Removal <sup>3,4,5,6</sup> (tons)	Excavation <sup>1</sup> (tons)	Required Backfill <sup>2</sup> (tons)	Rock Slope Protection Fabric <sup>7,8,10</sup> (sq. ft.)	Rock Slope Protection <sup>7,8,10</sup> (tons)	Specific Design Required? (Yes/No)	Length of Damage (feet)
1	3	7	3	10	3	Tidal	No	Yes	14	4	15	305	38	Yes	10
2	3	7	1	400	3	Tidal	Yes	No	140	91	365	5,891	687	No	400
3	3.5	7	1	155	3.5	Tidal	Yes	No	58	43	174	2,392	289	No	155
4	5	7	1	82	5	Tidal	Yes	No	37	38	152	1,440	188	No	82
6	6	8	1	30	4	Non-tidal	Yes	No	12	10	41	0	0	No	30
7.1	7	7	1	300	5	Non-tidal	Yes	No	135	165	658	0	0	No	300
7.2	7	7	1	50	4	Non-tidal	Yes	No	20	25	101	0	0	No	50
7.3	6	7	1	100	4	Non-tidal	Yes	No	40	44	176	0	0	No	100
7.4	6	8	2	200	2	Non-tidal	Yes	No	80	74	297	0	0	No	200
8	6	8	1	40	2	Tidal	No	Yes	51	9	38	759	103	No	40
13.1	5	7	1	100	4	Tidal	Yes	No	40	37	149	1,756	229	No	100
13.2	5	7	1	120	4	Tidal	Yes	No	48	45	178	2,107	275	No	120
13.3	6	7	1	120	5	Tidal	Yes	No	54	56	223	2,276	309	No	120
14.1	8	10	1	20	2.5	Tidal	No	Yes	34	1	4	436	63	No	20
15	8	10	1	40	1.5	Tidal	No	Yes	68	1	3	872	126	No	40
16	8	10	1	60	1.5	Tidal	No	Yes	102	1	5	1,308	189	No	60
17	8	10	2	20 +/- smaller damage sites. 1 cu. yd. fill per site, rip rap entire slope.	2	Tidal	No	Yes	322	9	36	3,997	598	No	1075
18.1	8	10	2	2 medium damage sites. 2 cu. yd. fill per site, rip rap entire slope.	3	Tidal	No	Yes	54	2	7	566	100	No	50
18.2	8	10	1	20	5	Tidal	No	Yes	34	4	17	436	63	No	20
19	8	10	2	2 smaller damage sites. 1 cu. yd. fill per site, rip rap entire slope	2	Tidal	No	Yes	32	1	4	400	60	No	40
20	8	10	2	4 medium damage sites. 2 cu. yd. fill per site, rip rap entire slope.	3	Tidal	No	Yes	107	4	15	1,332	199	No	110
21.1	8	10	2	1 smaller damage site. 1 cu. yd. fill, rip rap entire slope	2	Tidal	No	Yes	16	0	2	200	30	No	10
21.2	8	10	2	1 smaller damage site. 1 cu. yd. fill, rip rap entire slope	2	Tidal	No	Yes	16	0	2	200	30	No	10
22	8	10	3	30	3	Tidal	No	Yes	114	7	27	1,388	211	No	30
23	8	10	2	25 +/- smaller damage sites. 1 cu. yd. fill per site, rip rap entire slope.	2	Tidal	No	Yes	402	11	46	4,996	747	No	1520

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Table 1 - Construction Quantity Breakdown - 2007 Levee Repairs

Failure or Damage Area	Average Levee Height (feet)	Average Top of Damaged Levee Width (feet)	Sideslope (#feet:1)	Length of Damage (feet)	Average Depth of Damage (feet)	Location of Damage	Clearing and Grubbing Required?	Debris Removal Required?	Clear, Grub and Debris Removal <sup>3,4,5,6</sup> (tons)	Excavation <sup>1</sup> (tons)	Required Backfill <sup>2</sup> (tons)	Rock Slope Protection Fabric <sup>7,8,10</sup> (sq. ft.)	Rock Slope Protection <sup>7,8,10</sup> (tons)	Specific Design Required? (Yes/No)	Length of Damage (feet)
24	8	10	2	7 medium damage sites. 2 cu. yd. fill per site, rip rap entire slope.	3	Tidal	No	Yes	188	6	26	2,331	349	No	500
25	8	10	1	150	6	Tidal	No	Yes	255	46	182	3,270	473	No	150
26	8	10	2	1 smaller damage site. 1 cu. yd. fill, rip rap entire slope	2	Tidal	No	Yes	16	0	2	200	30	No	10
27	8	10	2	60	4	Tidal	No	Yes	161	16	65	1,998	299	No	60
28.1	8	10	2	15	4	Tidal	No	Yes	40	4	16	500	75	No	15
28.2	8	10	3	20	2	Tidal	No	Yes	76	2	8	925	141	No	20
29.1	8	10	2	15	2	Tidal	No	Yes	40	1	4	500	75	No	15
30	8	10	3	150	4	Tidal	No	Yes	569	61	243	6,941	1,057	No	150
31	8	10	2	2 smaller damage sites. 1 cu. yd. fill per site, rip rap entire slope	2	Tidal	No	Yes	32	1	4	400	60	No	85
32	8	10	1	80	5	Tidal	No	Yes	136	17	68	1,744	252	No	80
33	6	10	2	2 medium damage sites. 2 cu. yd. fill per site, rip rap entire slope.	3	Tidal	No	Yes	40	2	7	577	82	No	80
34	4	10	2	40	2	Tidal	No	Yes	54	3	11	974	127	No	40
35	3	10	3	170	2	Tidal	No	Yes	242	17	69	5,178	653	No	170
37	5	10	2	1 medium damage site. 2 cu. yd. fill, rip rap entire slope.	3	Tidal	No	Yes	17	1	4	266	36	No	20
38	5	10	3	60	2	Tidal	No	Yes	142	6	24	2,207	307	No	60
39	5	10	2	60	4	Tidal	No	Yes	101	16	65	1,596	217	No	60
41.1	6	10	3	60	3	Tidal	No	Yes	171	14	55	2,397	346	No	60
41.2	6	10	3	60	3	Tidal	No	Yes	171	14	55	2,397	346	No	60
42	6	10	1.5	20	8	Tidal	No	Yes	32	16	65	473	66	No	20
43	6	10	2	300	8	Tidal	No	Yes	604	324	1,296	8,650	1,223	No	300
45	8	10	2	1 medium damage site. 2 cu. yd. fill, rip rap entire slope.	3	Tidal	No	Yes	27	1	4	333	50	No	20
46	8	10	1	80	4	Tidal	No	Yes	136	11	43	1,744	252	No	80
47	8	10	1	110	4.5	Tidal	Yes	No	47	19	75	2,398	347	No	110
50	8	10	2	1 medium damage site. 2 cu. yd. fill, rip rap entire slope	2	Tidal	No	Yes	27	1	4	333	50	No	20
51	8	10	1	40	6.5	Tidal	No	Yes	68	14	57	872	126	No	40
52	6	10	3	300	5	Tidal	No	Yes	854	190	759	11,984	1,729	No	300
53	8	10	2	100	4	Tidal	No	Yes	268	27	108	3,330	498	No	100
57.1	6	10	1	75	5	Non-tidal	Yes	No	34	16	63	0	0	No	75
57.2	6	10	3	200	4.5	Non-tidal	Yes	No	175	103	410	0	0	No	200
58	4	10	2	105	2	Tidal	Yes	No	42	7	28	2,558	333	No	105

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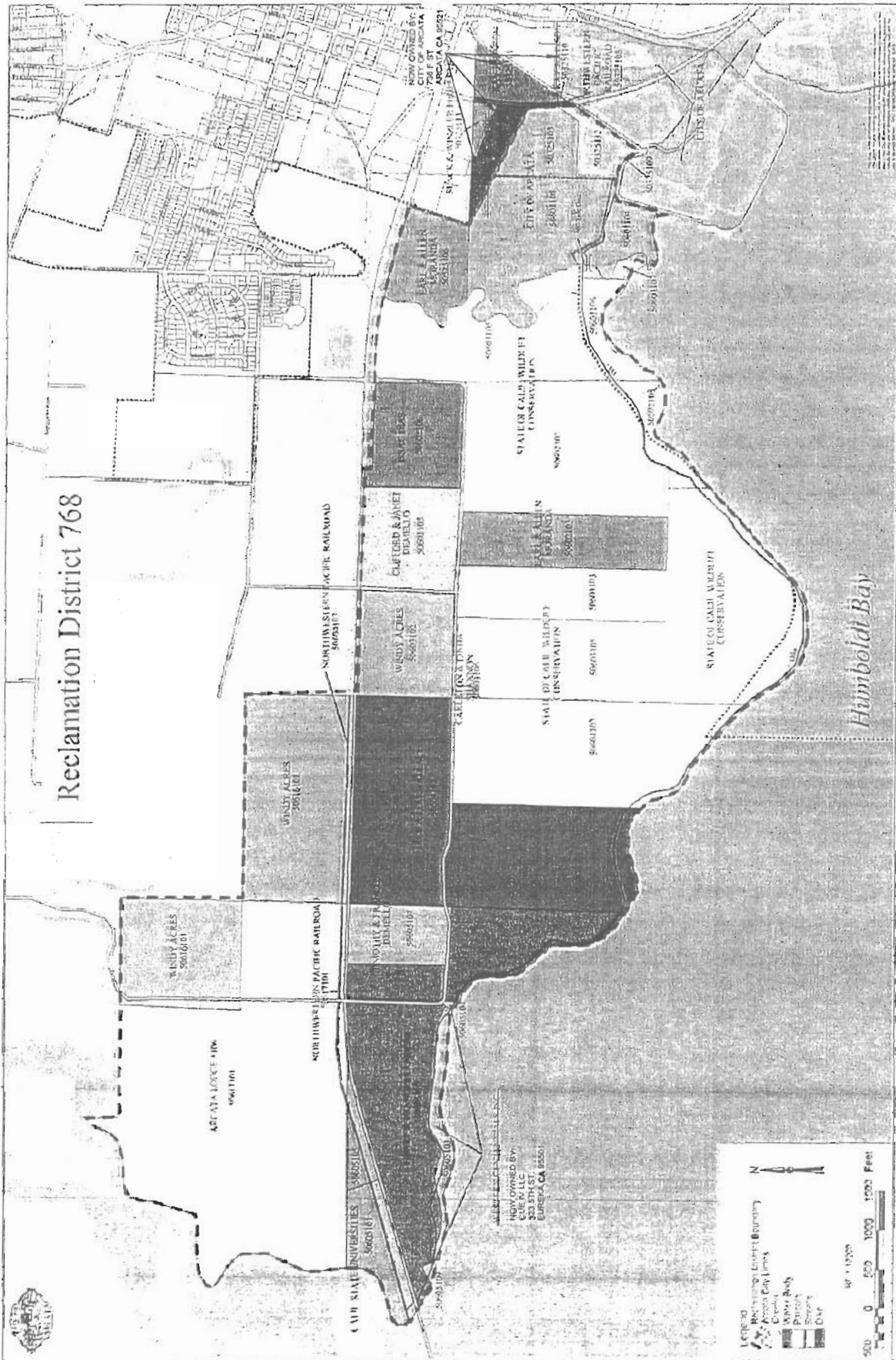


Table 1 - Construction Quantity Breakdown - 2007 Levee Repairs

Failure or Damage Area	Average Levee Height (feet)	Average Top of Damaged Levee Width (feet)	Sideslope (feet:1)	Length of Damage (feet)	Average Depth of Damage (feet)	Location of Damage	Clearing and Grubbing Required?	Debris Removal Required?	Clear, Grub and Debris Removal <sup>3,4,5,6</sup> (tons)	Excavation <sup>1</sup> (tons)	Required Backfill <sup>2</sup> (tons)	Rock Slope Protection Fabric <sup>7,8,9</sup> (sq. ft.)	Rock Slope Protection <sup>7,8,9</sup> (tons)	Specific Design Required? (Yes/No)	Length of Damage (feet)
66	5	10	1	30	2	Tidal	No	Yes	32	1	4	527	69	No	30
69	6	10	2	150	2.5	Tidal	No	Yes	302	16	63	4,325	611	No	150
Total Project Length				7,877 linear feet (1.5 linear miles)				Totals	7,127	1,654 (898 yd <sup>3</sup> )	6,618 (3,631 yd <sup>3</sup> )	105,082	14,809 (8,126 yd <sup>3</sup> )		7,877

- 1 Excavation of ex levee prior to backfill (% of backfill)  
 2 Backfill density is assumed to be  
 3 Clearing and Grubbing is assumed to be  
 4 Width of Clearing and Grubbing is Width of Failure plus  
 5 Debris Removal is assumed to be  
 6 Debris Removal thickness is assumed to be  
 7 Rock Slope Protection depth is assumed to be  
 8 Rock Slope Protection is assumed to be  
 9 Rock Slope Protection Fabric keyed into top  
 10 Rock Slope Protection Fabric keyed into bottom of slope  
 \* These notes do not pertain to fissure or top of levee repairs.
- 25%  
 135  
 100  
 4  
 150  
 2  
 3  
 135  
 2  
 3
- # per cu. ft.  
 # per sq. ft.  
 feet  
 # per cu. ft.  
 feet  
 # per cu. ft.  
 feet  
 feet (vertical depth)
- Spot repair  
 Specific Design Req'd

15 of 27



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Figure 1



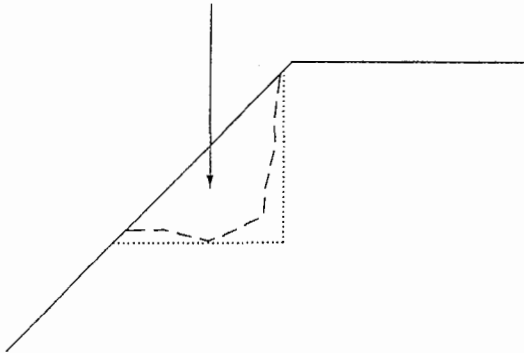
19927



← INBOARD SIDE

BAY/SLOUGH SIDE →

AREA OF DAMAGED LEVEE. EXCAVATE TO LOWEST POINT OF DAMAGE, CREATE LEVEL BENCH, AND BACKFILL WITH ENGINEERED FILL IN 8" LIFTS MAX. COMPACT TO 90% RELATIVE COMPACTION MIN.



NOTES:

1. HYDROSEED ALL NONTIDAL DISTURBED EARTH SURFACES.
2. REMOVE ALL DEBRIS AND CLEAR AND GRUB PRIOR TO WORK.
3. AREAS WHERE NONTIDAL LEVEE SLOPE IS GREATER THAN OR EQUAL TO 1:1, INSTALL COCONUT/STRAW EROSION BLANKETS ON ALL DISTURBED EARTH SURFACES.

**NONTIDAL LEVEE REPAIR**  
**CROSS-SECTION**

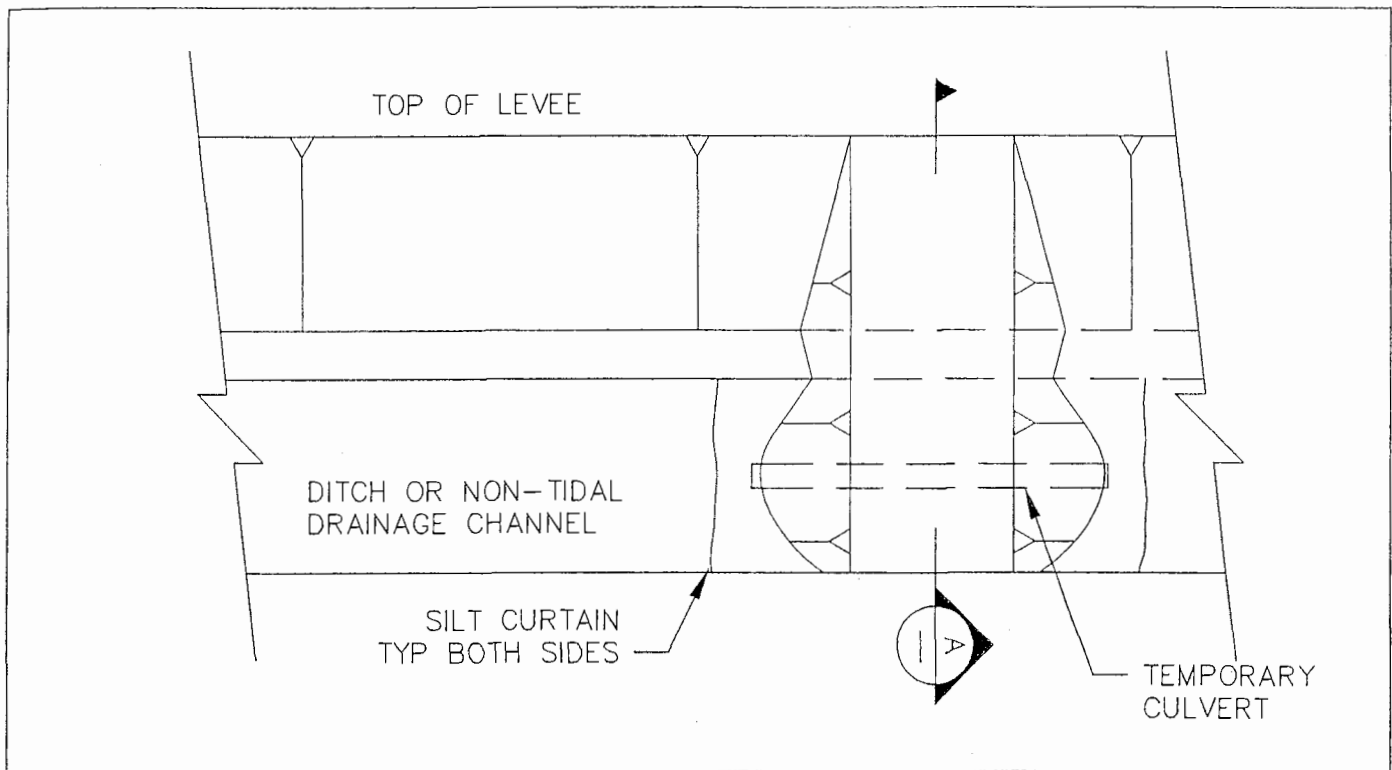
SCALE: 1/8 INCH = 1'±

PURPOSE: REPAIR LEVEE DAMAGE  
AT: HUMBOLDT LEVEE  
IN: HUMBOLDT BAY & MAD RIVER SLOUGH  
CO: HUMBOLDT  
STATE: CALIFORNIA  
APPLICATION BY: RECLAMATION DISTRICT 768

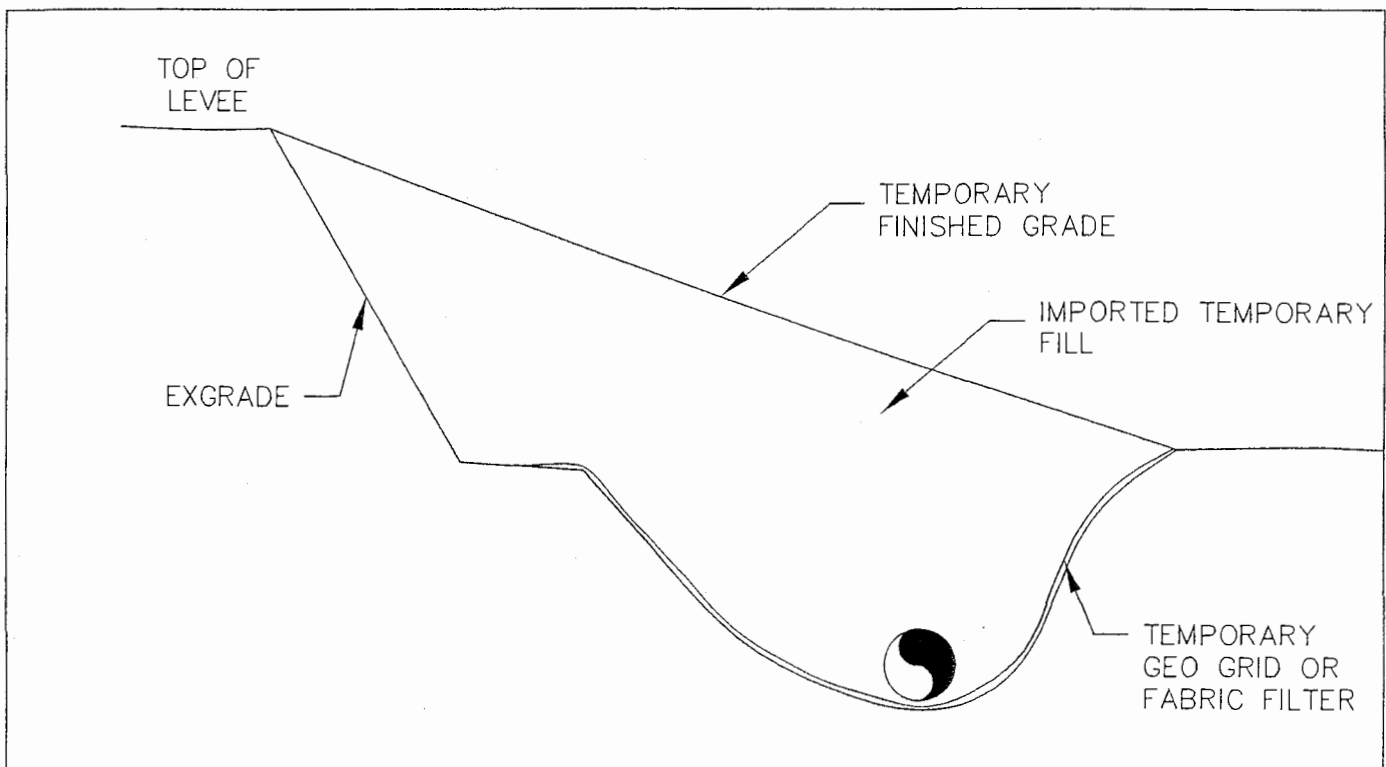
21 of 27

OSCAR LARSON & ASSOCIATES



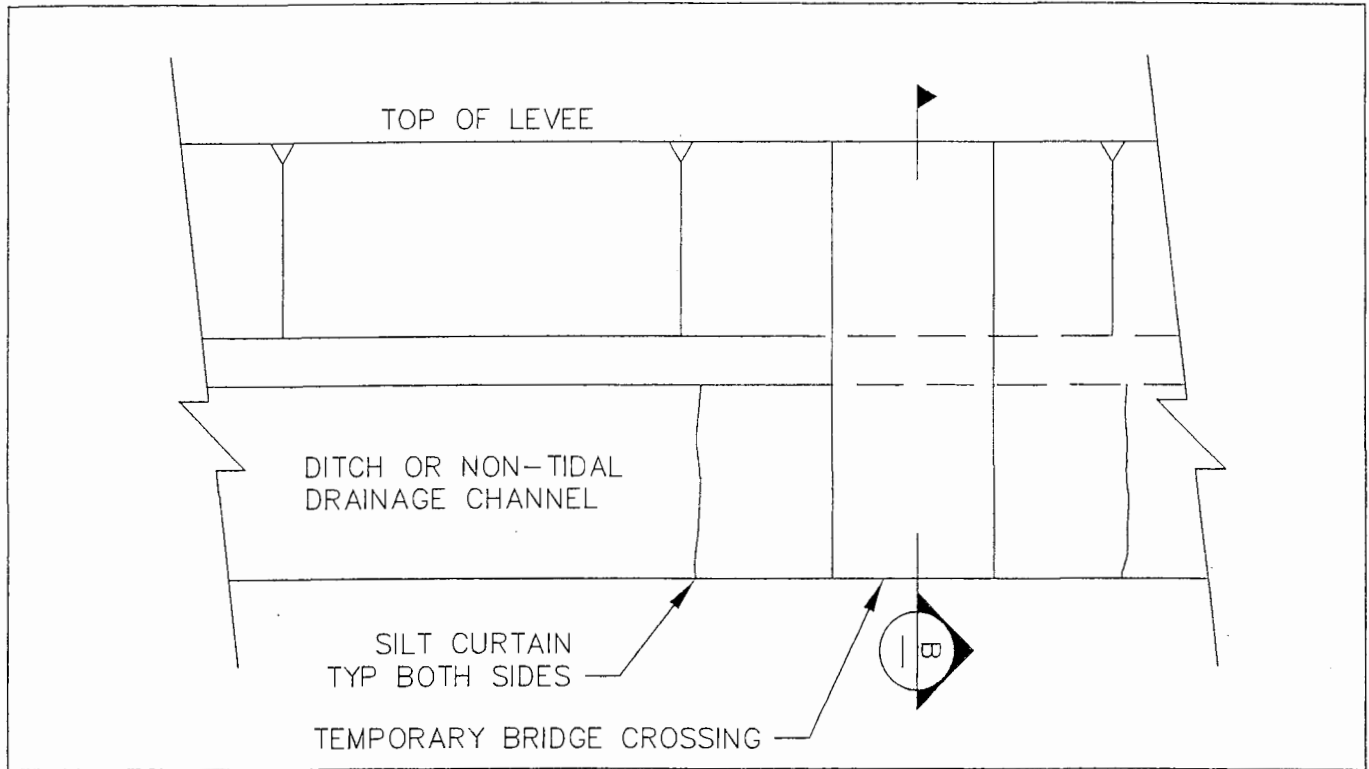


1 PLAN - TEMPORARY DITCH CROSSING - CULVERT  
SCALE: NTS

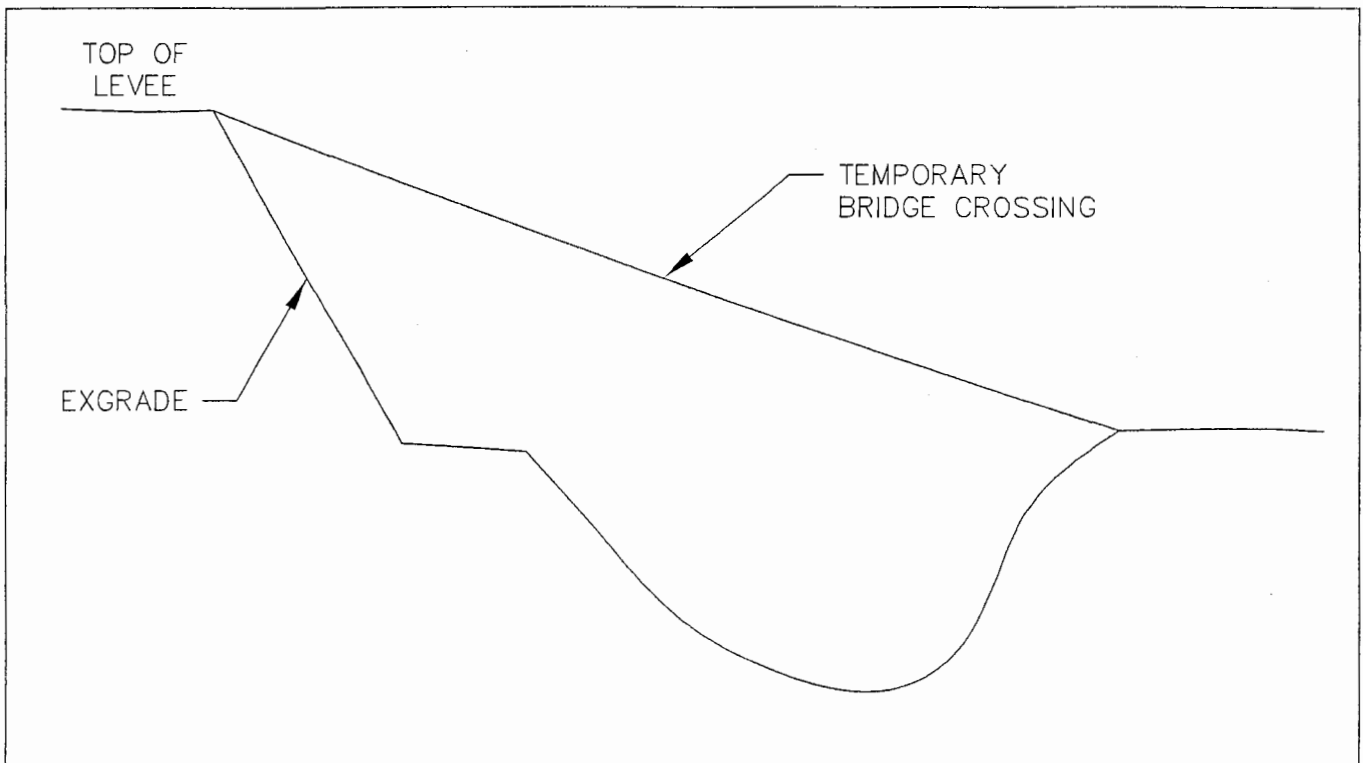


A SECTION  
SCALE: NTS

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2 PLAN - TEMPORARY DITCH CROSSING - BRIDGE  
SCALE: NTS



B SECTION  
SCALE: NTS

230427



## SECTION 72: SLOPE PROTECTION

### 72-1 GENERAL

#### 72-1.01 DESCRIPTION

Slope protection consists of rock, concrete, concreted-rock or slope paving. The type of slope protection to be used will be designated in the Engineer's Estimate, the special provisions or shown on the plans. The slope protection shall be placed in conformance with these specifications, the special provisions, and the details and dimensions shown on the plans or directed by the Engineer.

### 72-2 ROCK SLOPE PROTECTION

#### 72-2.01 DESCRIPTION

This work shall consist of placing revetment type rock courses on the slopes. The size of the individual pieces of rock in each class shall be as indicated in the table in Section 72-2.02, "Materials," or as specified in the special provisions. The classes of rock slope protection will be designated in the Engineer's Estimate as 8T, 4T, 2T, 1T,  $\frac{1}{2}$ T,  $\frac{1}{4}$ T, Light, Facing, and No. 1, No. 2 or No. 3 Backing.

#### 72-2.02 MATERIALS

The individual classes of rocks used in rock slope protection shall conform to the following, unless otherwise specified in the special provisions, or as shown on the plans.

GRADING OF ROCK SLOPE PROTECTION					
Method A Placement, Percentage Larger Than*					
Rock Sizes	Classes				
	8T	4T	2T	1T	$\frac{1}{2}$ T
16 Ton	0-5	—	—	—	—
8 Ton	50-100	0-5	—	—	—
4 Ton	95-100	50-100	0-5	—	—
2 Ton	—	95-100	50-100	0-5	—
1 Ton	—	—	95-100	50-100	0-5
$\frac{1}{2}$ Ton	—	—	—	95-100	50-100
$\frac{1}{4}$ Ton	—	—	—	—	95-100

\* The amount of material smaller than the smallest rock size listed in the above tables for any class of rock slope protection shall not exceed the percentage limit listed in the above tables determined on a weight basis. Compliance with the percentage limit shown in the above tables for all other rock sizes of the individual pieces of any class of rock slope protection shall be determined by the ratio of the number of individual pieces larger than the specified rock size compared to the total number of individual pieces larger than the smallest rock size listed in the above tables for that class.



## SECTION 72

## SLOPE PROTECTION

## GRADING OF ROCK SLOPE PROTECTION

Method B Placement, Percentage Larger Than*								
Rock Size	Classes							
	1T	1/2T	1/4T	Light	Facing	No. 1	No. 2	No. 3
2 Ton	0-5	—	—	—	—	—	—	—
1 Ton	50-100	0-5	—	—	—	—	—	—
1/2 Ton	—	50-100	0-5	—	—	—	—	—
1/4 Ton	95-100	—	50-100	0-5	—	—	—	—
200 lb	—	95-100	—	50-100	0-5	0-5	—	—
75 lb	—	—	95-100	—	50-100	50-100	0-5	—
25 lb	—	—	—	95-100	90-100	90-100	25-75	0-5
5 lb	—	—	—	—	—	—	90-100	25-75
1 lb	—	—	—	—	—	—	—	90-100

\* The amount of material smaller than the smallest rock size listed in the above tables for any class of rock slope protection shall not exceed the percentage limit listed in the above tables determined on a weight basis. Compliance with the percentage limit shown in the above tables for all other rock sizes of the individual pieces of any class of rock slope protection shall be determined by the ratio of the number of individual pieces larger than the specified rock size compared to the total number of individual pieces larger than the smallest rock size listed in the above tables for that class.

- The material shall also conform to the following quality requirements:

Test	California Test	Requirement
Apparent Specific Gravity	206	2.5 min.
Absorption	206	4.2% max.*
Durability Index	229	52 min.*

\* Based on the formula listed below, absorption may exceed 4.2 percent if DAR is greater than 10. Durability Index may be less than 52 if DAR is greater than 24.

$$\frac{\text{Coarse Durability Index}}{\% \text{ Absorption} + 1} = \text{Durability Absorption Ratio (DAR)}$$

- Rocks, when conforming to the provisions in this Section 72-2.02, may be obtained from rock excavation of the roadway prism or other excavation being performed under the provisions of the contract, in conformance with the provisions in Section 4-1.05, "Use of Materials Found on the Work."

- Rocks shall be of such shape as to form a stable protection structure of the required section. Rounded boulders or cobbles shall not be used on prepared ground surfaces having slopes steeper than 2:1 (horizontal:vertical). Angular shapes may be used on any planned slope. Flat or needle shapes will not be accepted unless the thickness of the individual pieces is greater than 0.33 times the length.

## SECTION 72

## SLOPE PROTECTION

### 72-2.025 ROCK SLOPE PROTECTION FABRIC

- Rock slope protection fabric shall be placed prior to placing rock slope protection, when the fabric is shown on the plans, or specified in the special provisions, or ordered by the Engineer.
- Rock slope protection fabric shall conform to the provisions in Section 88, "Engineering Fabrics," and shall be placed in conformance with the details shown on the plans and as specified in these specifications.
- Prior to placing rock slope protection fabric, the surfaces upon or against which rock slope protection fabric is to be placed, shall be free of loose or extraneous material and sharp objects that may damage the fabric during installation.
- Rock slope protection fabric shall be handled and placed in conformance with the manufacturer's recommendations and as directed by the Engineer. Rock slope protection fabric shall be placed loosely upon or against the surface to receive the fabric so that the fabric conforms to the surface without damage when the cover material is placed.
- Rock slope protection fabrics shall be joined, at the option of the Contractor, either with overlapped joints or stitched seams.
- When fabric is joined with overlapped joints, adjacent borders of the fabric shall be overlapped not less than 24 inches. The fabric shall be placed such that the fabric being placed shall overlap the adjacent section of fabric in the direction the cover material is being placed.
- When the fabric is joined by stitched seams, the fabric shall be stitched with yarn of a contrasting color. The size and composition of the yarn shall be as recommended by the fabric manufacturer. The number of stitches per inch of seam shall be approximately 5 to 7. The strength of stitched seams shall be the same as specified for the fabric, except when stitched seams are oriented up and down a slope, the strength shall be a minimum of 80 percent of that specified for the fabric.
- Equipment or vehicles shall not be operated or driven directly on the rock slope protection fabric.
- Rock slope protection fabric damaged during placement shall be replaced or repaired, as directed by the Engineer, by the Contractor at the Contractor's expense. Fabric damaged beyond repair, as determined by the Engineer, shall be replaced. Repairing damaged fabric shall consist of placing new fabric over the damaged area. The minimum fabric overlap from the edge of the damaged area shall be 3 feet for overlap joints. If the new fabric joints at the damaged areas are joined by stitching, the stitched joints shall conform to the requirements specified herein.

### 72-2.03 PLACING

- Rock slope protection shall be placed in conformance with one of the following methods as designated in the Engineer's Estimate.
- At the completion of slope protection work, the footing trench shall be filled with excavated material and compaction will not be required.

#### Method A Placement

- A footing trench shall be excavated along the toe of slope as shown on the plans.

## SECTION 72

## SLOPE PROTECTION

- . The larger rocks shall be placed in the footing trench.
- . Rocks shall be placed with their longitudinal axis normal to the embankment face and arranged so that each rock above the foundation course has a 3-point bearing on the underlying rocks. Foundation course is the course placed on the slope in contact with the ground surface. Bearing on smaller rocks which may be used for chinking voids will not be acceptable. Placing of rocks by dumping will not be permitted.
- . Local surface irregularities of the slope protection shall not vary from the planned slope by more than one foot measured at right angles to the slope.

### Method B Placement

- . A footing trench shall be excavated along the toe of the slope as shown on the plans.
- . Rocks shall be so placed as to provide a minimum of voids, and the larger rocks shall be placed in the toe course and on the outside surface of the slope protection. The rock may be placed by dumping and may be spread in layers by bulldozers or other suitable equipment.
- . Local surface irregularities of the slope protection shall not vary from the planned slopes by more than one foot measured at right angles to the slope.

### 72-2.04 MEASUREMENT

- . Rock slope protection will be measured by the ton or cubic yard as designated in the Engineer's Estimate.
- . Quantities of rock slope protection to be paid for by the cubic yard will be determined from the dimensions shown on the plans or the dimensions directed by the Engineer and rock slope protection placed in excess of these dimensions will not be paid for.
- . Quantities of rock slope protection to be paid for by the ton will be weighed in conformance with the provisions in Section 9-1.01, "Measurement of Quantities."
- . Rock slope protection fabric will be measured by the square yard. The quantity to be paid for will be the actual area covered not including additional fabric required for overlaps.

### 72-2.05 PAYMENT

- . The contract price paid per cubic yard or per ton for rock slope protection (the class of rock and method of placement to be designated in the Engineer's Estimate) shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in constructing the rock slope protection, complete in place, including excavation, and backfilling footing trenches, as shown on the plans, and as specified in these specifications and the special provisions, and as directed by the Engineer.
- . The contract price paid per square yard for rock slope protection fabric shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in furnishing and placing rock slope protection fabric, complete in place, as shown on the plans, as specified in these specifications and the special provisions, and as directed by the Engineer.



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Voice: 707/826-0300 • Fax: 707/826-0540 • E-mail: MRB@madriverbio.com

EXHIBIT NO. 4

APPLICATION NO.

1-03-004-A1

RECLAMATION DISTRICT 768

BOTANICAL REPORT (1 of 14)

August 24, 2006

Stein Coriell  
Oscar Larson & Associates  
317 Third Street  
Eureka, CA 95502

RE: Addendum Botanical Assessment/Survey for the Reclamation District 768 Levee Repair Project.

Mr. Coriell,

The following report is an addendum to Results of the Preliminary Botanical Assessment for the Reclamation District 768 Levee Repair Project, prepared by Mad River Biologists (MRB) and submitted to Oscar Larson & Associates (OLA) on June 16, 2006.

The identification of approximately fifty Humboldt Bay owl's-clover (*Castilleja ambigua* ssp. *humboldtiensis*) plants growing on the levee road prism and another 350-450 plants growing on the levee fill slope adjacent to the Mad River Slough in May of 2006 was documented in the preliminary botanical report submitted to OLA. An additional survey of the levee was recommended to determine presence or probable absence of later blooming special status plants thought to have potential for occurrence that may not have been detected during the May site visit, namely Point Reyes bird's-beak (*Cordylanthus maritimus* ssp. *palustris*) and western sand-spurrey (*Spergularia canadensis* var. *occidentalis*). The preliminary report also identified the need for establishing suitable mitigation measures for potential impacts to special status plants that may be affected by proposed levee repair and maintenance activities.

On July 19<sup>th</sup>, 2006, a second site visit was conducted to survey for Point Reyes bird's-beak and western sand-spurrey. Point Reyes bird's-beak was observed growing within the pickleweed salt marsh habitat of the slough down slope from the levee where it borders Jackson Ranch, and more or less in the same locations of the marsh where Humboldt Bay owl's-clover was observed growing in May of 2006. Only five individuals of bird's-beak were observed on the levee fill slope, and no individuals were found on the levee road prism. No other special status plants were found.

Humboldt Bay owl's-clover and Point Reyes bird's-beak are on the California Native Plant Society's List 1B.2, and have special status in the State of California where they are considered fairly endangered. Government agencies are required to consider environmental impacts of projects to special status plants, pursuant to Section 15370 of the California Environmental Quality Act, and to avoid or mitigate them where possible.

Bruce Webb of the California Department of Fish and Game was consulted on August 9, 2006 and Andrea Pickart of the U.S. Fish and Wildlife Service was consulted on August 24, 2006 regarding the proposed project and potential impacts to the owl's-clover and bird's-beak. While the consultations were preliminary in nature and inconclusive pending additional evaluation of project activities, the discussions led to the formulation of the following recommendations for avoiding adverse impacts to populations of special status plants found within the project area.

Humboldt Bay owl's-clover and Point Reyes bird's-beak are both annual species. Impacts to reproductive individuals occurring on or near the Jackson Ranch levee may be avoided by scheduling construction and maintenance activities in this area after the plants die back in July or early August, although impacts to seed could still occur. Seed of Humboldt Bay owl's-clover may be directly impacted by re-building those portions of the eroded levee near Jackson Ranch where plants were observed growing in 2006, and by the continued use of the levee as an access road. These activities would likely bury or crush any seed that is present. Seed on the fill slope and within the adjacent salt marsh could also be adversely affected by sediment transport during construction, which has the potential to bury seed and thus hinder germination.

As described in the preliminary botanical assessment, the levee does not provide important habitat for Humboldt Bay owl's-clover or Point Reyes bird's-beak. Their presence on the levee is attributed to failure of the levee during the previous winter when it was overtopped by water from the slough, which may have deposited seed from these species carried in on high tides. Both species are known to occur at high frequency and density in the adjacent salt marsh habitats of the Mad River Slough. Humboldt Bay owl's-clover was documented in "extremely high numbers" (i.e. over 100,000 individuals) on a mainland marsh directly opposite of the project site in 1988 (Pickart and Miller 1988). Although the populations of both species are known to fluctuate significantly from year to year, subsequent monitoring within the slough has shown that their numbers have remained relatively stable (pers. comm. Andrea Pickart 8/24/06).

The fifty Humboldt Bay owl's-clover plants growing on the Jackson Ranch levee represents a small fraction of the population within the Mad River Slough. However, it may be possible to conserve seed produced by individuals occurring on the levee by collecting seed in late June or early July prior to construction, and transplanting it to suitable salt marsh habitat adjacent to the project site.

During construction, emphasis should be placed on the protection of the salt marsh habitat found adjacent to the levee that supports these species. A number of Best Management Practices (BMPs) pertaining to hydrology and water quality are included in the project work plan. The incorporation of these measures during construction will be important to avoid sedimentation of the slough and associated salt marsh habitats. Pre- and post-construction monitoring of rare plants located immediately adjacent to the construction site may also serve to document any impacts that might occur as a result of project activities.

2914

In summary, with incorporation of BMPs to avoid sedimentation of the salt marsh habitat within the slough, restricting construction and other activities that cause ground disturbance in the areas where rare plants have been identified until after reproductive individuals die back, and potentially conserving seed from owl's-clover found growing on the levee by transplanting it to suitable habitat nearby, impacts to Humboldt Bay owl's-clover and Point Reyes bird's-beak from implementation of the proposed project are expected to be minimal. Furthermore, potential adverse impacts to adjacent populations of these species from project activities (such as sedimentation) could be identified through monitoring.

If you have any questions regarding the information provided here, please do not hesitate to call.

Sincerely,

Signature on File

Stephanie Morrisette, Associate Biologist

#### Reference

Pickart, A. J. and L.M. Miller. 1988. A survey of *Cordylanthus maritimus* ssp. *palustris* and *Orthocarpus castillejoides* var. *humboldtiensis* in Mad River Slough, Humboldt Bay, California. The Nature Conservancy, California Field Office. San Francisco.

3914

# MAD RIVER BIOLOGISTS

920 Samoa Boulevard, Suite 210, Arcata, CA 95521

Voice: 707/826-0300 • Fax: 707/826-0540 • E-mail: MRB@madriverbio.com

June 16, 2006

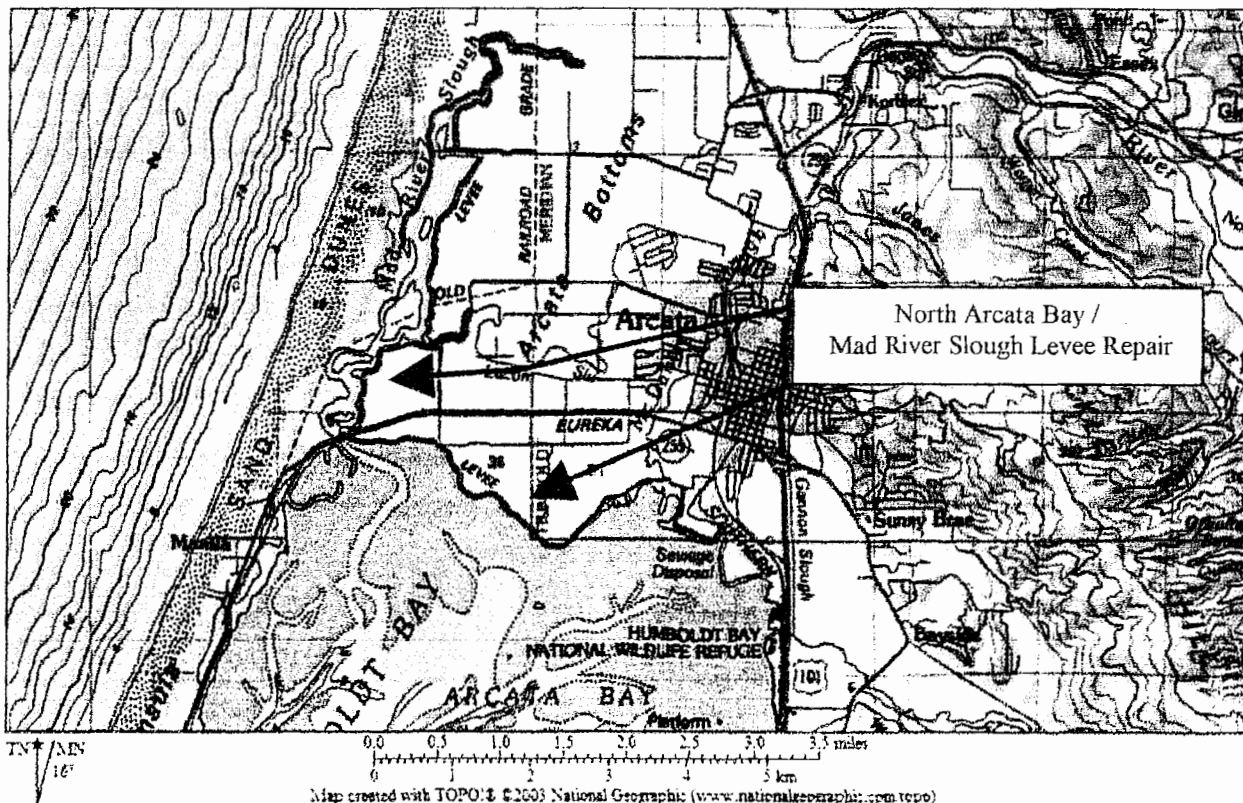
Stein Coriell  
Oscar Larson & Associates  
317 Third Street  
Eureka, CA 95502

RE: Results of preliminary botanical assessment for the Reclamation District 768 Levee Repair Project.

Mr. Coriell,

The following report is a summary of the botanical assessment/survey conducted by Mad River Biologists (MRB) for the Reclamation District 768 Levee Repair Project. Four proposed equipment staging areas, proposed temporary access routes, and various sections of the levee where repairs need to be made were investigated on May 30, 2006 by MRB Associate Biologist Stephanie Morrisette. The purpose of the investigation was to determine if repair of the levee and use of the staging areas and temporary access routes would impact any listed special status plants known from the project region. The levee borders North Arcata Bay and the Mad River Slough as shown in Figure 1.

Figure 1 Project Vicinity





### Method

The site visit was timed to target the blooming period of Humboldt Bay owl's-clover (*Castilleja ambigua* ssp. *humboldtiensis*) and the emergence of Point Reyes bird's-beak (*Cordylanthus maritimus* ssp. *palustris*), two listed annual salt marsh species known to occur in high salt marsh habitats of Humboldt Bay and the Mad River Slough. Although there is low potential for these species to occur interior to the levee, the staging areas, proposed temporary access routes and the banks of the adjacent in-board ditches were intensively surveyed to determine presence or probable absence of these species.

Other species addressed include plants inventoried by the California Natural Diversity Database (CNDDDB) and the California Native Plant Society (CNPS) that have occurrence records in the project region. The project region was defined as the Arcata North and eight adjacent USGS 7.5 minute quadrangles (Trinidad, Crannell, Blue Lake, Korbel, Panther Creek, Tyee City, Eureka and Arcata South). The results of the database queries are provided as Attachment A. Regional special status plants considered to have low or moderate potential for occurrence within the salt or brackish marsh habitats adjacent to the levee or the seasonal freshwater agricultural wetlands of the proposed staging areas include: Lynbye's sedge (*Carex lyngbyei*), western sand-spurrey (*Spergularia canadensis* var. *occidentalis*), coastal marsh milk-vetch (*Astragalus pycnostachyus* var. *pycnostachyus*), marsh violet (*Viola palustris*), and marsh pea (*Lathyrus palustris*). The May 30<sup>th</sup> botanical survey was seasonally appropriate for all these species except western sand-spurrey, which requires the presence of seeds for positive identification.

A map showing the proposed staging areas, access routes and levee repair locations was provided by Oscar Larson and Associates.

### Site Description

The staging areas are located interior to the levee and associated in-board ditches within seasonal agricultural wetlands. These wetlands represent diked former tidelands of Humboldt Bay that were converted to pasture for agricultural purposes after the levee was built around 1880. The substrate consists of poorly drained Bayside silty clay loam. Most Bayside soils support permanent pasture except for a few scattered areas still affected by salt water, such as in-board ditches that may be connected to leaky tide gates or areas where the levee has failed. Cattle and/or sheep graze within the staging areas during the dry months of summer and fall. They are removed during the rainy season when necessary.

Brackish species such as seacoast bulrush (*Scirpus maritimus*) and ditch grass (*Ruppia* sp.) were found growing within the in-board ditches, with salt grass (*Distichlis spicata*), meadow barley (*Hordeum brachyantherum*), silverweed (*Potentilla anserina*) and spear oracle (*Atriplex triangularis*) typically growing on the banks. The staging areas are indicative of seasonally saturated or inundated freshwater wetlands dominated by obligate hydrophytes such as water foxtail (*Alopecurus geniculatus*) and spikerush (*Eleocharis macrostachya*). Exotic pasture grasses such as velvet grass (*Holcus lanatus*), tall fescue (*Festuca arundinaceae*), sweet vernal grass (*Anthoxanthum odoratum*), and exotic herbs such as sheep sorrel (*Rumex acetosella*), bird-foot trefoil (*Lotus corniculatus*), white clover (*Trifolium repens*), and yellow parentucellia (*Parentucellia viscosa*) are also common, although typically at slightly higher elevations than the spikerush and water foxtail. Brackish species such as brass buttons (*Cotula coronopifolia*) and sand spurrey (*Spergularia marina*) are also frequently encountered, especially in disturbance openings where there is little competition with pasture grasses for these early colonizing plants.



The levee itself is predominately vegetated with exotic and/or disturbance-related species such as English plantain (*Plantago lanceolata*), wild radish (*Raphanus sativus*), wild carrot (*Daucus carota*), pineapple weed (*Camomilla suaveolens*), curly dock (*Rumex crispus*), Himalayan blackberry (*Rubus discolor*), ripgut brome (*Bromus diandrus*), wild oat (*Avena barbata*), perennial ryegrass (*Lolium perenne*), rough cat's-ear (*Hypochaeris radicata*), coyote brush (*Baccharis pilularis*) and others.

High salt marsh habitat was encountered on the bay side of the levee near the Arcata Marsh and on the Mad River Slough. Common associates include pickleweed (*Salicornia virginica*), seaside arrowgrass (*Triglochin maritima*), sea lavender (*Limonium californicum*), Jaumea (*Jaumea carnosa*), saltgrass, spear oracle, and the invasive exotic dense-flowered cordgrass (*Spartina densiflora*).

Little to no vegetation occurs where rip-rap has been placed along the outer levee where it borders Humboldt Bay.

### Results

No special status plants were found in the proposed staging areas or proposed temporary access routes.

Humboldt Bay owl's-clover was discovered within the high salt marsh pickleweed habitat near the Arcata Marsh and on the east bank of the Mad River Slough where it abuts the levee. Point Reyes bird's-beak, a common associate of the owl's-clover, was not found. The bird's-beak would have been in vegetative form or just starting to produce flowers by the May 30<sup>th</sup> site visit. There is potential for it to occur within the same salt marsh habitat as the owl's-clover near the project site, although probably not in as high of density as the owl's-clover.

The owl's clover was also found growing on the levee in a few places near the Mad River Slough (Figure 1). The levee was reportedly overtopped during the winter of 2005/2006 (pers. comm. Stein Coriell). It is suspected that floodwaters may have deposited seed onto the levee from nearby populations, and the subsequent higher than normal rainfall received during the winter of 2006 may have allowed a few scattered individuals to germinate. Individuals found here appear opportunistic since they were not growing in typical salt marsh habitat. In other areas, the levee has become degraded and is close to the elevation of the adjacent salt marsh, and the owl's-clover and other native salt marsh species have started to encroach upon the western fill slope of the levee (Figures 2 and 3). It was estimated that 400 to 500 individuals occur on the levee, most of these on the west bank immediately adjacent to the salt marsh habitat of the Mad River Slough.

Two *Spergularia* sp. were observed growing on the levee in the vicinity of the owl's-clover and adjacent to the Mad River Slough. One was the more common salt marsh sand spurrey or *Spergularia marina*, but the other could potentially be the listed western sand spurrey or *Spergularia canadensis* var. *occidentalis*. An additional site visit later in the season when this species is in fruit will be necessary for making a positive identification.

Humboldt Bay owl's-clover and Point Reyes bird's-beak are CNPS list 1B species. Western sand spurrey is a CNPS list 2 species. Plants on these lists have limited distribution in California and are considered to be rare, threatened or endangered pursuant to Section 15370 of the California Environmental Quality Act (CEQA). CEQA requires government agencies to consider environmental impacts of projects to special status species, and to avoid or mitigate them where possible.

### Summary and Recommendations

No special status plants were found within the proposed staging areas or proposed temporary access routes. Use of these grazed agricultural wetlands for the levee repair project will not impact any special status plants or important habitat for listed species.

Portions of the levee near the Mad River Slough were found to support a few scattered occurrences of Humboldt Bay owl's-clover. Approximately 400-500 individuals were found, primarily on the western fill slope of the levee leading down to the salt marsh habitats within the slough. Point Reyes bird's-beak and western sand spurrey also have potential to occur here. Adverse impacts to reproductive individuals or the seed of these species could be caused by vehicles driving on the levee or repair activities such as grading or rebuilding of the levee. Impacts to reproductive individuals may be avoided by scheduling ground disturbance activities after the plants set seed in July or early August, although impacts to seed could still occur.

The levee does not represent important habitat for Humboldt Bay owl's-clover, Point Reyes bird's-beak, or western sand spurrey. The intended repair and/or reconstruction of the levee and the Continued use for vehicle access will result in permanent displacement of existing rare plants.

Mitigation measures designed to conserve potential seed bank do not seem appropriate for this project since impacts will be permanent, and the introduction of fill material from the levee that may contain the seed of protected plants into suitable habitat areas (i.e. estuarine wetlands) is not a feasible option. Nevertheless, consultation with the California Department of Fish and Game should be initiated to discuss appropriate measures, if any, to be taken for the conservation, avoidance or mitigation of Humboldt Bay owl's-clover and other potentially occurring special status species (Point Reyes bird's-beak and western sand spurrey).

The identified impact to individuals of Humboldt Bay owl's-clover growing on the levee is not considered significant for the population as a whole, however protective measures should be taken to avoid or minimize sedimentation of the salt marsh habitats within the slough during construction. It should also be noted that no census was conducted for rare plants identified within the project area. The May 30, 2006 site visit was a reconnaissance-level survey only, intended to identify potential constraints for implementation of the proposed project. Additional survey work may be necessary to quantify project impacts to special status plants and to verify the presence or probable absence of western sand spurrey and Point Reyes bird's-beak.

If you have any questions regarding the information provided here, please do not hesitate to call.

Sincerely,

Signature on File

Stephanie Morrisette, Associate Biologist



Figure 2. Humboldt Bay owl's-clover (*Castilleja ambigua* ssp. *humboldtiensis*) growing on levee



Figure 3. Humboldt Bay owl's-clover growing on edge of levee close to the elevation of the adjacent salt marsh habitat.

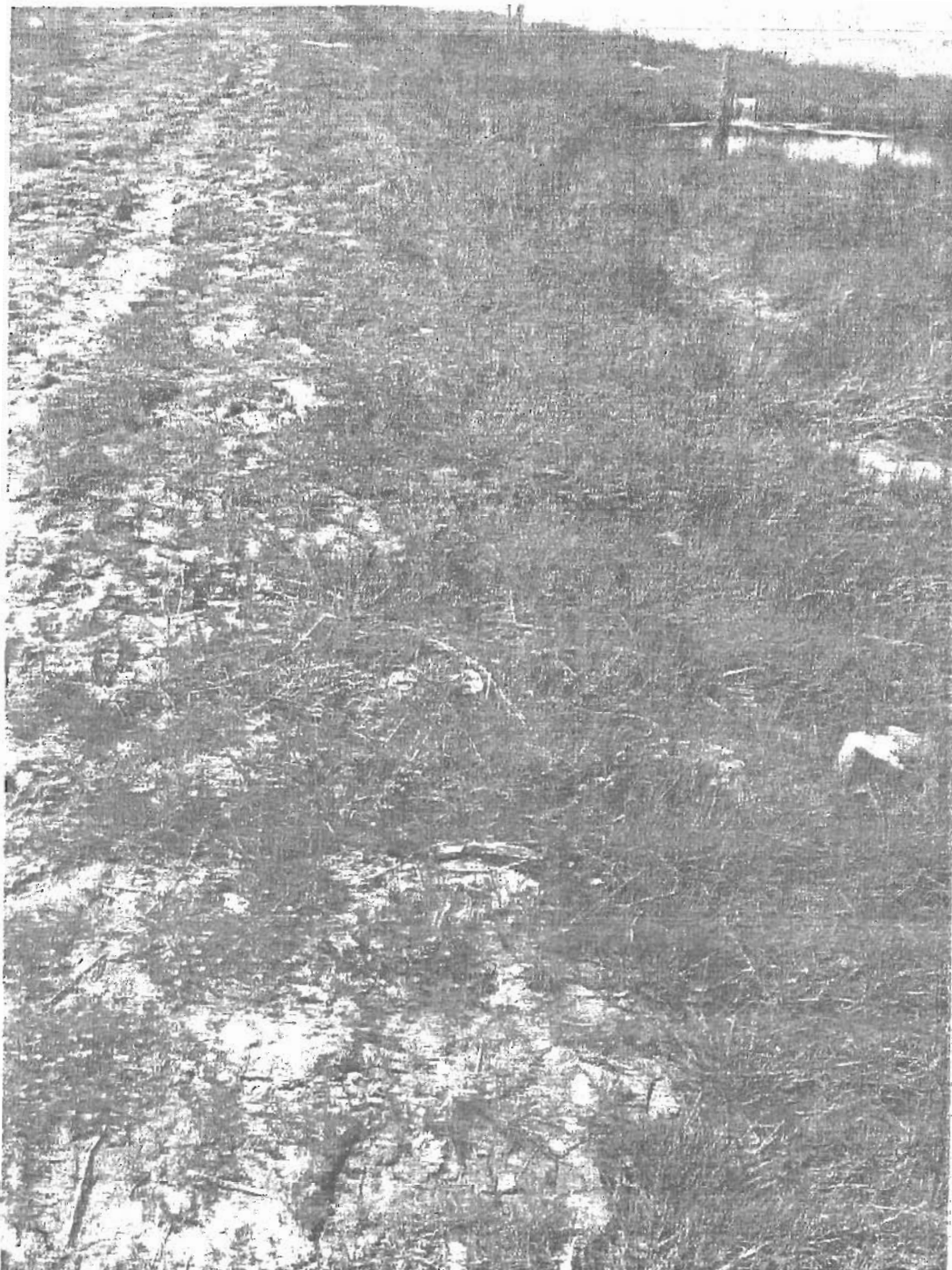


Figure 4. Humboldt Bay owl's-clover on west side (slough side) of levee

Attachment A      CNDDB and CNPS Database Queries

10 of 14

California Department of Fish and Game  
Natural Diversity Database  
Selected Elements by Scientific Name  
Arcata North and nine adjacent quadrangles  
Humboldt Reclamation District Levee Repair Project

Scientific Name/Common Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS/R-E-D
1 <i>Abronia umbellata</i> ssp. <i>breviflora</i> pink sand-verbena	PDNYC010N2			G4G5T2	S2.1	1B/2-3-2
2 <i>Astragalus pycnostachyus</i> var. <i>pycnostachyus</i> coastal marsh milk-vetch	PDFAB0F7B2			G2T2	S2.2	1B/3-2-3
3 <i>Astragalus umbraticus</i> Bald Mountain milk-vetch	PDFAB0F990			G4	S2.3	2/2-1-1
4 <i>Bensoniella oregona</i> bensoniella	PDSAX02010		Rare	G3	S2.2	1B/3-3-2
5 <i>Carex arcta</i> northern clustered sedge	PMCYP030X0			G5	S1S2	2/2-2-1
6 <i>Carex lenticularis</i> var. <i>limnophila</i> lakeshore sedge	PMCYP037A7			G5T5	S1S2.2	2/3-2-1
7 <i>Carex leptalea</i> flaccid sedge	PMCYP037E0			G5	S2?	2/3-2-1
8 <i>Carex lyngbyei</i> Lyngbye's sedge	PMCYP037Y0			G5	S2.2	2/2-2-1
9 <i>Carex praticola</i> meadow sedge	PMCYP03B20			G5	S2S3	2/2-2-1
10 <i>Carex viridula</i> var. <i>viridula</i> green sedge	PMCYP03EM3			G5T5	S1.3	2/3-1-1
11 <i>Castilleja affinis</i> ssp. <i>litoralis</i> Oregon coast Indian paintbrush	PDSCR0D1V0			G4G5T4	S2.2	2/2-2-1
12 <i>Castilleja ambigua</i> ssp. <i>humboldtiensis</i> Humboldt Bay owl's-clover	PDSCR0D402			G4T2	S2.2	1B/2-2-3
13 <i>Castilleja mendocinensis</i> Mendocino coast Indian paintbrush	PDSCR0D3N0			G2	S2.2	1B/2-2-2
14 <i>Cordylanthus maritimus</i> ssp. <i>palustris</i> Point Reyes bird's-beak	PDSCR0J0C3			G4?T2	S2.2	1B/2-2-2
15 <i>Empetrum nigrum</i> ssp. <i>hermaphroditum</i> black crowberry	PDEMP03021			G5T5	S2?	2/3-2-1
16 <i>Erysimum menziesii</i> ssp. <i>eurekaense</i> Humboldt Bay wallflower	PDBRA160E2	Endangered	Endangered	G3?T1	S1.1	1B/3-3-3
17 <i>Erythronium revolutum</i> coast fawn lily	PMLIL0U0F0			G4	S2.2	2/2-2-1
18 <i>Fissidens pauperculus</i> minute pocket-moss	NBMUS2W0U 0			G3?	S1.2	1B/2-2-3
19 <i>Gilia capitata</i> ssp. <i>pacifica</i> Pacific gilia	PDPLM040B6			G5T3T4	S2.2?	1B/2-2-2
20 <i>Gilia millefoliata</i> dark-eyed gilia	PDPLM04130			G2	S2.2	1B/2-2-2
21 <i>Hesperis matronalis</i> var. <i>brevifolia</i> short-leaved evax	PDASTE5011			G4T3	S3.2	2/2-2-1
22 <i>Lathyrus japonicus</i> sand pea	PDFAB250C0			G5	S1.1	2/3-3-1

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California Department of Fish and Game  
Natural Diversity Database  
Selected Elements by Scientific Name  
Arcata North and nine adjacent quadrangles  
Humboldt Reclamation District Levee Repair Project

Scientific Name/Common Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS/R-E-D
23 <i>Lathyrus palustris</i> marsh pea	PDFAB250P0			G5	S2S3	2/2-2-1
24 <i>Layia carnosa</i> beach layia	PDAST5N010	Endangered	Endangered	G1	S1.1	1B/3-3-3
25 <i>Lilium occidentale</i> western lily	PMLIL1A0G0	Endangered	Endangered	G1	S1.2	1B/3-3-2
26 <i>Lycopodiella inundata</i> bog club-moss	PPLYC03060			G5	S1?	2/3-2-1
27 <i>Lycopodium clavatum</i> running-pine	PPLYC01080			G5	S2S3	2/2-1-1
28 <i>Mitella caulescens</i> leafy-stemmed mitrewort	PDSAX0N020			G5	S2.3	2/2-1-1
29 <i>Monotropa uniflora</i> Indian-pipe	PDMON03030			G5	S2S3	2/2-2-1
30 <i>Montia howellii</i> Howell's montia	PDPOR05070			G3G4	S1.2	2/3-2-1
31 <i>Oenothera wolfii</i> Wolf's evening-primrose	PDONA0C1K0			G1	S1.1	1B/3-3-2
32 <i>Romanzoffia tracyi</i> Tracy's romanzoffia	PDHYD0E030			G4	S1.3	2/3-1-1
33 <i>Sidalcea malachroides</i> maple-leaved checkerbloom	PDMAL110E0			G3	S3.2	1B/2-2-2
34 <i>Sidalcea malviflora ssp. patula</i> Siskiyou checkerbloom	PDMAL110F9			G5T1	S1.1	1B/3-2-2
35 <i>Sidalcea oregana ssp. eximia</i> coast checkerbloom	PDMAL110K9			G5T1	S1.2	1B/3-2-3
36 <i>Spergularia canadensis var. occidentalis</i> western sand-spurrey	PDCAR0W032			G5T4?	S1.1	2/3-3-1
37 <i>Thermopsis robusta</i> robust false lupine	PDFAB3Z0D0			G2Q	S2.2	1B/2-2-3
38 <i>Trichodon cylindricus</i> cylindrical trichodon	NBMUS7N020			G4G5	S2.2	2/2-2-1
39 <i>Usnea longissima</i> long-beard lichen	NLLEC5P420			G4	S4.2	
40 <i>Viola palustris</i> marsh violet	PDVIO041G0			G5	S1S2	2/3-2-1

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## CNPS Inventory of Rare and Endangered Plants

Status: Plant Press Manager window with 40 items - Mon, Jun. 12, 2006 20:29 c

- During each visit, we provide you with an empty "Plant Press" for collecting items of interest.
- Several report formats are available. Use the CSV and XML options to download raw data.

Reformat list as:

DELETE unchecked items


































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open	save	scientific	common	family	CNPS
		<b>Abronia umbellata ssp. breviflora</b>	pink sand-verbena	Nyctaginaceae	List 1B.1
		<b>Astragalus pycnostachyus var. pycnostachyus</b>	coastal marsh milk-vetch	Fabaceae	List 1B.2
		<b>Astragalus umbraticus</b>	Bald Mountain milk-vetch	Fabaceae	List 2.3
		<b>Carex arcta</b>	northern clustered sedge	Cyperaceae	List 2.2
		<b>Carex lenticularis var. limnophila</b>	lakeshore sedge	Cyperaceae	List 2.2
		<b>Carex leptalea</b>	flaccid sedge	Cyperaceae	List 2.2
		<b>Carex lyngbyei</b>	Lyngbye's sedge	Cyperaceae	List 2.2
		<b>Carex praticola</b>	meadow sedge	Cyperaceae	List 2.2
		<b>Carex viridula var. viridula</b>	green sedge	Cyperaceae	List 2.3
		<b>Castilleja affinis ssp. litoralis</b>	Oregon coast Indian paintbrush	Scrophulariaceae	List 2.2
		<b>Castilleja ambigua ssp. humboldtiensis</b>	Humboldt Bay owl's-clover	Scrophulariaceae	List 1B.2
		<b>Castilleja mendocinensis</b>	Mendocino coast Indian paintbrush	Scrophulariaceae	List 1B.2
		<b>Cordylanthus maritimus ssp. palustris</b>	Point Reyes bird's-beak	Scrophulariaceae	List 1B.2
		<b>Didymodon norrisii</b>	Norris's beard-moss	Pottiaceae	List 2.2
		<b>Discelium nudum</b>	naked flag-moss	Disceliaceae	List 2.2
		<b>Empetrum nigrum ssp. hermaphroditum</b>	black crowberry	Empetraceae	List 2.2
		<b>Erysimum menziesii ssp. eurekaense</b>	Humboldt Bay wallflower	Brassicaceae	List 1B.1
		<b>Erythronium revolutum</b>	coast fawn lily	Liliaceae	List 2.2
		<b>Fissidens pauperculus</b>	minute pocket-moss	Fissidentaceae	List 1B.2
		<b>Gilia capitata ssp. pacifica</b>	Pacific gilia	Polemoniaceae	List 1B.2

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	<b>Gilia millefoliata</b> 	dark-eyed gilia	Polemoniaceae	List 1B.2
	<b>Hesperervax sparsiflora</b> var. <b>brevifolia</b> 	short-leaved evax	Asteraceae	List 2.2
	<b>Lathyrus japonicus</b> 	sand pea	Fabaceae	List 2.1
	<b>Lathyrus palustris</b>	marsh pea	Fabaceae	List 2.2
	<b>Layia carnosae</b> 	beach layia	Asteraceae	List 1B.1
	<b>Lilium occidentale</b> 	western lily	Liliaceae	List 1B.1
	<b>Lycopodiella inundata</b> 	bog club-moss	Lycopodiaceae	List 2.2
	<b>Lycopodium clavatum</b> 	running-pine	Lycopodiaceae	List 2.3
	<b>Mitella caulescens</b> 	leafy-stemmed mitrewort	Saxifragaceae	List 2.3
	<b>Monotropa uniflora</b> 	Indian-pipe	Ericaceae	List 2.2
	<b>Montia howellii</b> 	Howell's montia	Portulacaceae	List 2.2
	<b>Oenothera wolfii</b> 	Wolf's evening-primrose	Onagraceae	List 1B.1
	<b>Romanzoffia tracyi</b>	Tracy's romanzoffia	Hydrophyllaceae	List 2.3
	<b>Sidalcea malachroides</b> 	maple-leaved checkerbloom	Malvaceae	List 1B.2
	<b>Sidalcea malviflora</b> ssp. <b>patula</b> 	Siskiyou checkerbloom	Malvaceae	List 1B.2
	<b>Sidalcea oregana</b> ssp. <b>eximia</b>	coast checkerbloom	Malvaceae	List 1B.2
	<b>Spergularia canadensis</b> var. <b>occidentalis</b>	western sand-spurrey	Caryophyllaceae	List 2.1
	<b>Tiarella trifoliata</b> var. <b>trifoliata</b>	trifoliate laceflower	Saxifragaceae	List 3
	<b>Trichodon cylindricus</b>	cylindrical trichodon	Ditrichaceae	List 2.2
	<b>Viola palustris</b>	marsh violet	Violaceae	List 2.2

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## Oscar Larson & Associates

Consulting Engineers & Land Surveyors  
317 Third Street, 2nd Floor • Eureka • CA 95501

phone: 7  
fax: 7  
email: li  
website: t

### EXHIBIT NO. 5

#### APPLICATION NO.

1-03-004-A1

RECLAMATION DISTRICT 768

RARE PLANT MITIGATION  
PLAN (1 of 2)

-2043

Melissa Kraemer  
California Coastal Commission  
710 E Street, Suite 200  
Eureka CA 95501

Reply to: OL:062807

28 June 2007

JUN 28 2007

CALIFORNIA  
COASTAL COMMISSION

Subject: Mitigation measures for Humboldt Bay owl's-clover and Point Reyes bird's-beak for the  
Reclamation District 768 Levee Repair Project

Dear Mrs. Kraemer:

The following report is intended to provide additional detail and clarification of the mitigation measures being implemented for Humboldt Bay owl's-clover (*Castilleja ambigua* ssp. *humboldtiensis*) and Point Reyes bird's-beak (*Cordylanthus maritimus* ssp. *palustris*) on the Reclamation District 768 levee repair project.

It has been determined that it is infeasible to conduct a typical mitigation monitoring program for these species, where the success of mitigation planting can be quantified from year to year. This is because of the inability to document with confidence that any plants observed growing in subsequent years are the result of the seed planted for mitigation purposes (pers. comm. Andrea Pickart, USFWS June 2007). Seed may disperse or migrate due to the tidal action that occurs in the salt marsh habitat, or plants that grow may be the result of seed that was already present in the seed bed.

The next best feasible alternative is to delay construction where these plants would be affected until after flowering is complete. This way, seed can be collected and dispersed where it will have the best chance of growing in subsequent years.

Mitigation Measures include the following:

- 1) Construction activities on Jackson Ranch levee and Arcata levee east of repair site #58 shall not occur until after Humboldt Bay owl's-clover and Point Reyes bird's-beak have died back in July or early August. These are the locations where salt marsh habitat occurs adjacent to the levee.
- 2) A botanist shall survey the Jackson Ranch levee and the Arcata levee east of repair site #58 for these plants during their flowering periods.
- 3) If either species is observed growing on the levee or within the area where the levee is to be rebuilt, then seed will be collected and will be transplanted to suitable habitat nearby.

A site visit was conducted on June 18<sup>th</sup>, 2007. The Jackson Ranch levee and the Arcata levee east of repair site #58 were surveyed for Humboldt Bay owl's-clover and Point Reyes bird's-beak.

Portions of the eroded fill slope of the levee were found to support a few scattered occurrences of Humboldt Bay owl's-clover and Point Reyes bird's-beak. A total of 274 individuals of Humboldt Bay owl's-clover were documented growing on the levee or within the area where the levee is to be rebuilt between Highway 255 and the northern Humboldt Bay Municipal Water District pipeline. A lesser number of Point Reyes bird's-beak were observed in the same area, but have not yet been counted because the plants were not yet fully in flower. Neither plant was observed in the impact area on the Arcata levee east of repair site #58. Numerous individuals of both species were observed growing within the pickleweed salt marsh habitat outside of the areas to be impacted, down slope from the levee.

Oscar Larson & Associates

Melissa Kraemer

California Coastal Commission

Subject: Mitigation measures for Humboldt Bay owl's-clover and Point Reyes bird's-beak for the Reclamation District 768 Levee Repair Project

28 June 2007

Page 2

Following the identification of these plants growing within the impact area, the site will be visited weekly by a botanist. The number of Point Reyes bird's-beak will be determined when flowering is sufficiently advanced. Seed from individuals of both species in the impact area will be collected on a weekly basis as it matures, until the plants have ceased producing seed and have died back. The collected seed will be kept for approximately a week and allowed to dry naturally in the sun, and then will be broadcasted the week following collection.

The seed will be dispersed at the nearest suitable habitat to where the seed was collected, in a location that currently supports the plants. The intended area for seed dispersal is in the pickleweed salt marsh habitat on the east side of Mad River Slough just north of Highway 255. This area of salt marsh habitat is outside of the potential impact area of the levee repair project. Healthy populations of both Humboldt Bay owl's-clover and Point Reyes bird's-beak have been observed growing there this year, indicating that it represents suitable habitat for these plants.

There will be no temporal loss of Humboldt Bay owl's clover and Point Reyes bird's-beak with this mitigation program. The collected seed will be dispersed back to suitable habitat during the same time period as seed from the undisturbed population is being dispersed. Both species are annuals. Following flowering and the release of seed, these plants die back in late July or early August.

The collected seed will be broadcasted rather than planted, so as to imitate the natural seeding process. Burying seed would likely hinder germination (pers. comm. Andrea Pickart, USFWS June 2007).

These mitigation measures will serve to minimize the potential for adverse impacts to Humboldt Bay owl's-clover and Point Reyes bird's-beak as a result of levee repair activities.

Sincerely,

OSCAR LARSON & ASSOCIATES

Signature on File

Stein Coriell

Environmental Analyst/Planner

SEC:ikmy

Copy: Reclamation District 768  
File

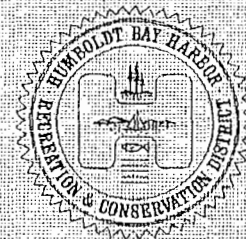
2 of 2

COMMISSIONERS

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2nd Division  
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HUMBOLDT BAY  
HARBOR, RECREATION, AND CONSERVATION  
DISTRICT

(707) 443-0801  
P.O. Box 1030  
Eureka, California 95502-1030



May 31, 2007

**ADMINISTRATIVE PERMIT**



Ms. Lois Wallace  
Reclamation District No. 768  
4150 Old Samoa Road  
Arcata, CA 95521

C/O Stein Coriell  
Oscar Larson and Associates  
317 Third Street  
Eureka, CA 95501

(707) 445-2043

RE: Repair of damaged Arcata levee and replacement of the McDaniel Slough tidegate along Arcata Bay and Mad River Slough under the ownership of Reclamation District No. 768.

**Administrative Permit No. A-2007-04**

Dear Mr. Coriell,

This is to inform you that the Harbor District has approved your application as detailed in the attached Exhibit A for the above referenced purpose, with the following conditions:

1. *The Permittee shall consult with the North Coast Unified Air Quality Management District with respect to the requirements of adopted AQMD regulatory plans. The Permittee shall comply with the requirements of all adopted air quality plans at all time, including plans covering particulate emissions, and shall implement all actions required by the AQMD for the applicant's repair operations. Dust suppression measures in the form of watering the work areas shall be used when necessary on access roads, materials storage areas staging areas, and during materials placement. The amount of water used shall not be of such volume as to cause runoff from the top of the levee or outside the boundary of the staging area.*

**EXHIBIT NO. 6**

**APPLICATION NO.**

1-03-004-A1

RECLAMATION DISTRICT 768

HARBOR DISTRICT PERMIT

(1 of 9)



2. All repair activities that include the removal or replacement of levee materials (whether for structural purposes or protection i.e. rock slope protection), shall incorporate silt fences, floating turbidity curtains, or equivalent similar structures or controls that meet sediment control requirements to reduce the discharge of materials into the bay, slough or other wetland areas. The device(s) shall be removed from the repair location following their use. All sediment control devices shall be installed consistent with the requirements of the State Water Resources Control Board NPDES General Permit for Discharges of Stormwater Associated with Construction Activity and the project's Storm Water Pollution Prevention Plan (SWPPP).
3. Construction activities on Jackson Ranch levee and on the Arcata levee east of site #58 shall not occur until after Humboldt Bay owl's clover (*Castilleja ambigua*) and Point Reyes bird's-beak (*Cordylanthus maritimus*) have died back in July or early August.
4. A botanist shall survey the Jackson Ranch levee and the Arcata levee east of site #58 for Humboldt Bay owl's clover (*Castilleja ambigua*) and Point Reyes bird's-beak (*Cordylanthus maritimus*) during their flowering periods. If either species is observed growing on the levee or within the area where the levee is to be rebuilt, then seed will be collected and will be transplanted to suitable habitat nearby.
5. Pre-construction surveys of eelgrass (*Zostera marina*) distribution and density will be conducted in the potential impact site and a suitable control site. Additionally, annual surveys of the potential impact site and control site for a period of five years following construction shall be completed. The annual post-construction surveys will determine if a decrease in eelgrass distribution or density has occurred associated with the placement of sheet piling. If the annual post-construction surveys show a decrease in eelgrass distribution or density relative to the control site, then the loss of eelgrass will be mitigated by conducting an eelgrass transplant program, as identified by the eelgrass mitigation plan (Exhibit B).



6. *Prior to construction of a temporary crossing or any repair or replacement of tidegates or culverts, tidewater gobies (Eucyclogobius newberryi) will be excluded from the area of impact by using seine netting stretching from substrate to water surface and bank-to-bank. The netting shall be of knotless mesh of no greater than 0.125" openings in the largest dimension. Netting will be deployed in such a way that it excludes gobies from the construction area and keeps them from entering the construction zone until the structure is in place and all work within wetted channels for the purpose of constructing the crossing or repairing/replacing the culvert has been completed.*
7. *If future tidewater goby surveys by USFWS result in discovery of new occupied locations within the project area, construction activities in those locations will be limited by a seasonal restriction. Those areas immediately adjacent to the newly discovered goby locations will be avoided by conducting repair work outside of the period from July 1 to September 1. This season restriction will aid in avoiding impacts to breeding fish during likely peak breeding periods.*
8. *Should any historic or prehistoric cultural resources be encountered during construction, work shall be halted in the affected area while a qualified archeologist assesses the significance of the find and develops a suitable mitigation plan.*
9. *No refueling of equipment shall occur on the levee. The equipment shall be removed from the levee for refueling. Routine maintenance of equipment is required and no equipment that visually displays signs of leaking fuels, lubricants or similar materials shall be allowed. The equipment shall be repaired or refueled on one of the designated staging areas with spill prevention measures employed or the equipment shall be removed from the site immediately. All refueling and maintenance shall be conducted in compliance with the contractor's Spill Prevention Control and Countermeasure Plan (SPCC), prepared in accordance with 40 CFR §112.*
10. *Construction activities on the levee shall be limited to the times in which the low tides occur, or shall be limited to areas above mean high water. Construction shall not occur outside the construction window of April 15 to October 15. The work shall be done from the top of the levee by loader, backhoe, excavator and dump trucks. No equipment shall enter the wetted channel of existing drainage courses or tidal areas. The levee shall be contoured to a stable condition before the equipment leaves the site.*

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- 11. All repair or restoration activities of the levee shall include the placement of a Type B rock slope protection fabric or similar erosion control material between the structural fill of the levee and the placement of rock slope protection or equivalent measures. This will reduce or minimize the amount of erosion that would otherwise occur.*
- 12. Any construction materials that are sloughed off into the bay, slough or other wetland areas during construction shall be removed. No fill or construction materials shall be deposited into the Arcata Bay or Mad River Slough other than those needed for the levee restoration.*
- 13. The structural fill that is to be excavated shall be temporarily placed on the top of the levee or in a staging area and, if suitable, shall be reused as backfill; any other materials that are not reusable as structural fill or riprap will be spread along the top of the levee or removed to an approved disposal site. The portion of the levee that receives this material is to be compacted for road and other access purposes and if needed re-vegetated to minimize erosion potential (using NRCS, CalTrans or equivalent vegetation standards). Materials that cannot be reused or would not be suitable for placement along the top of the levee shall be loaded into pick-up or dump truck(s) (depending on the volume and nature) and removed to an approved disposal site.*
- 14. Pile-driving activities shall be limited to the hours of 7:00 a.m. to 8:00 p.m. daily.*
- 15. The Permittee shall obtain a separate District Permit, subject to a separate environmental review, from District for proposed future maintenance of the levee.*
- 16. Any change from the proposed project detailed in Exhibit A must be submitted in writing and coordinated and approved in advanced by the Chief Executive Officer of the Humboldt Bay Harbor District.*
- 17. Any other permits or approvals required by other agencies must be obtained before commencing work.*

Neither the Humboldt Bay Harbor, Recreation and Conservation District, nor its Board of Commissioners, nor any Officer of the District shall be liable to any extent for the injury or damage to any person or property or for the death of any person arising out of or connected with the work authorized by this Permit, and the Permittee shall indemnify and hold this Harbor District, its Commissioners and Officers free and harmless from any liability for any such injury, death or damages.

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Administrative Permit No A-2007-04

May 31, 2007

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This Permit is valid as of this date for a period of one (1) year. Appeals may be made at the next regular session of the Board at 7:00 p.m. in the Woodley Island Marina Meeting Room.

Please sign and return the original of this letter if this Permit and its contents are fully understood. A copy is enclosed for your files. The acknowledgement should be returned within ten (10) days following permit issuance.

Signature on File

Permittee

6/4/07  
Date

If there are any questions with regard to this Permit, please contact this office referring to the permit number indicated above.

Sincerely,

Signature on File

David Hull  
Chief Executive Officer

C: Board of Commissioners  
District Counsel  
District Planner  
Conservation Specialist  
Administrative Assistant

Attachment

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## Notice of Exemption

To \_\_\_\_\_ Office of Planning and Research  
1400 Tenth Street, Room 121  
Sacramento, CA 95814

From (Public Agency) Humboldt Bay Harbor District  
P O Box 1030  
Eureka, CA 95502-1030

X County Clerk  
County of Humboldt  
825 5th St.  
Eureka, CA 95501

Project Title Reclamation District 768 Levee Repair

Project Location - Specific Arcata Bay

Project Location - City Arcata

Project Location - County Humboldt

Description of Nature, Purpose, and Beneficiaries of Project The purpose of the project is to repair +/-8,800 linear feet of levee damaged by severe storms between December 30, 2005 - January 3, 2006 to prevent flooding and saltwater intrusion to agricultural lands.

Name of Public Agency Approving Project Humboldt Bay Harbor, Recreation and Conservation District

Name of Person or Agency Carrying Out Project Reclamation District No. 768

Exempt Status (check one)

- ☐ Ministerial  
☐ Declared Emergency  
☒ Emergency Project / Section 15269  
☐ Categorical Exemption. State type and section number:

Reasons why project is exempt Levee repair project is the result of an emergency disaster declaration proclaimed by the Governor of California on January 2, 2006.

Lead Agency Contact Person David Hull

Area Code / Telephone / Extension 707-443-0801

If filed by applicant

1. Attach certified document of exemption finding.  
/ 2. Has a Notice of Exemption been filed by the public agency approving the project? ☐ Yes ☒ No  
Signature on File May 31, 2007 Chief Executive Officer

Sig

☒ Signed by Lead Agency

☐ Signed by Applicant

Date received for filing at OPR:

[Please click here to return to the previous page.](#)

## Press Release



OFFICE OF THE GOVERNOR

GAAS:01:06  
FOR IMMEDIATE RELEASE  
01/02/2006

### Governor Schwarzenegger Declares State of Emergency in Seven Counties Affected by Storms

Governor Arnold Schwarzenegger today declared a state of emergency in the counties of Del Norte, Humboldt, Mendocino, Napa, Sacramento, Sonoma, and Trinity, as a result of a series of severe rainstorms in that area that commenced on December 19, 2005. Below is the full text of the proclamation and attached is a PDF version.

#### A PROCLAMATION

BY THE GOVERNOR OF THE STATE OF CALIFORNIA

I, ARNOLD SCHWARZENEGGER, Governor of the State of California, find that conditions of extreme peril to the safety of persons and property exist within the counties of Del Norte, Humboldt, Mendocino, Napa, Sacramento, Sonoma, and Trinity, as a result of a series of severe rainstorms in that area that commenced on December 19, 2005. The series of storms brought unusually heavy rains that caused flooding, mudslides, the accumulation of debris, washed out and damaged roads, and the loss of human life. These counties have proclaimed local emergencies and have requested that I proclaim a state of emergency, because the magnitude of this disaster exceeds the capabilities of the services, personnel, equipment and facilities of these counties. Under the authority of the California Emergency Services Act, set forth at Title 2, Division 1,

Chapter 7 of the California Government Code, commencing with section 8550, I hereby proclaim that a State of Emergency exists within the counties of Del Norte, Humboldt, Mendocino, Napa, Sacramento, Sonoma, and Trinity.

Pursuant to this proclamation, I hereby direct all agencies of the state government to utilize and employ state personnel, equipment and facilities for the performance of any and all necessary activities to alleviate this emergency as directed by my Office of Emergency Services and in accordance with the State Emergency Plan.

I FURTHER DIRECT that as soon as hereafter possible, this proclamation be filed in the Office of the Secretary of State and that widespread publicity and notice be given of this proclamation.

IN WITNESS WHEREOF I have hereunto set my hand and caused the Great Seal of the State of California to be affixed this 2nd day of January, 2006.

/s/ ARNOLD SCHWARZENEGGER  
Governor of California

State of Emergency Proclamation

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Back to Top of Page



FEMA

## Designated Counties for California Severe Storms, Flooding, Mudslides, and Landslides

Disaster Summary For FEMA-1628-DR, California

Declaration Date: February 3, 2006

Incident Type: Severe Storms, Flooding, Mudslides, and Landslides

Incident Period: December 17, 2005, through and including January 3, 2006

### Individual Assistance

(Assistance to individuals and households):

The counties of Contra Costa, Del Norte, Lake, Marin, Mendocino, Napa, Sacramento, Siskiyou, Solano, and Sonoma.

### Public Assistance

(Assistance to State and local governments and certain private nonprofit organizations for emergency work and the repair or replacement of disaster-damaged facilities):

The counties of Alpine, Amador, Butte, Colusa, Contra Costa, Del Norte, El Dorado, Humboldt, Lake, Lassen, Marin, Mendocino, Napa, Nevada, Placer, Plumas, Sacramento, San Joaquin, San Luis Obispo, San Mateo, Santa Cruz, Sierra, Siskiyou, Solano, Sonoma, Sutter, Trinity, Yolo, and Yuba.

### Hazard Mitigation Grant Program

(Assistance to State and local governments and certain private nonprofit organizations for actions taken to prevent or reduce long term risk to life and property from natural hazards):

All counties in the State of California are eligible to apply for assistance under the Hazard Mitigation Grant Program.

### Other:

Additional designations may be made at a later date after further evaluation.

More information about California Severe Storms, Flooding, Mudslides, and Landslides

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## \$5.6 Million Coming for Humboldt County Levees

July 10, 2006

Washington, DC – The Federal Emergency Management Agency (FEMA) and the Governor's Office of Emergency Services (OES) have committed more than \$5.6 million toward the repair of Humboldt County's Arcata and Jackson levees damaged during the severe storms and flooding of late 2005 and early 2006, U.S. Senator Dianne Feinstein (D-Calif.) announced today.

"At the onset of this year, the Arcata and Jackson levees in Humboldt County sustained severe storm damage that desperately required a speedy response," Senator Feinstein said. "With FEMA's approval of a \$5.6 million grant, California will be able to move forward with the repair process and return the levees to their original conditions."

The \$5,641,818 grant announced today was made available under the FEMA/OES Public Assistance (PA) Program. The grant will fund engineering services, debris removal, new rock slope protection and other efforts to repair damages to the two levees and bring them back to pre-disaster conditions.

In December 2005 and January 2006, high tides and winds in excess of 90 mph combined to compromise the integrity of the Arcata and Jackson levees, located north and south of State Route 255, in Arcata. As a result of the storms and flooding, Governor Arnold Schwarzenegger proclaimed a state of emergency for 31 counties and requested federal disaster help.

President Bush declared a major disaster for the 31 counties, making 13 eligible for disaster assistance to renters, homeowner and businesses of all sizes, and 30 counties eligible for reimbursements under the PA Program.

The PA Program provides reimbursements to state and local government agencies and certain non-profits providing government-like services for eligible, disaster-related expenses associated with debris removal, emergency protective measures, and repair and restoration of damaged infrastructure. Seventy-five percent of the PA program is funded by FEMA, 18.75 percent by the State of California, and the remainder is provided by local governments.

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## United States Department of the Interior

## FISH AND WILDLIFE SERVICE

Arcata Fish and Wildlife Office  
1655 Heindon Road  
Arcata, CA 95521-5582  
Phone: (707) 822-7201 Fax: (707) 822-8411



In Reply Refer To:  
File #: 8-14-2006-3050

APR 27 2006/7

Lieutenant Colonel Craig W. Kiley  
District Commander  
San Francisco District, U.S. Army Corps of Engineers  
1455 Market Street  
San Francisco, California 94103-1398

## EXHIBIT NO. 7

## APPLICATION NO.

1-03-004-A1

RECLAMATION DISTRICT 768

USFWS FORMAL  
CONSULTATION (1 of 31)

Subject: Formal Consultation on the proposed Reclamation District 768's 10-year individual permit for Levee Storm Damage Repairs (File No. 4002350N), and the proposed Reclamation District 768's Regional General Permit for Levee Storm Damage Repairs (File No. 4002351N), located in Humboldt County, California

Dear Lieutenant Colonel Kiley:

This document transmits the U.S. Fish and Wildlife Service's (Service) biological opinion (BO) based on our review of the proposed Reclamation District 768's levee storm damage repairs located in Humboldt County, California (File No. 4002350N and 4002351N). We received your request for formal consultation and formal conference on February 7, 2007. You have determined that the project is likely to adversely affect the Federally-listed endangered tidewater goby (*Eucyclogobius newberryi*), and is likely to adversely affect proposed critical habitat for the tidewater goby. This document was prepared in accordance with the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.) (Act) and its implementing regulations (50 CFR §402).

This BO is based on information provided in the December 12, 2006 project description from Oscar Larson & Associates, and other sources of information. A complete administrative record of this consultation is on file in this office.

#### Consultation History

September 18, 2006 The Service received a request for informal consultation on levee repair activities by Reclamation District No. 768.

September 26, 2006 The Service received a transmittal from Oscar Larson & Associates dated September 21, 2006, describing the proposed fall 2006 emergency levee repairs as a separate action from 2007 and beyond activities.

October 3, 2006 The Service met with David Ammerman of the Army Corps of Engineers (Corps), Keytra Meyer with National Oceanic Atmospheric Administration Fisheries Service, a representative of the Reclamation District, and staff from Oscar Larson & Associates to discuss the separation of the 2006 activities from the 2007 activities.

October 4, 2006 A field visit was conducted and the proposed 2006 activities were reviewed.

October 4, 2006 The Service issued a letter of concurrence with the Corps' determination that the proposed 2006 activities were not likely to adversely affect the tidewater goby.

October 10, 2006 The Service received an amended request for informal consultation on the 2006 activities

October 17, 2006 Telephone conversation between Lynn Roberts (Service) and David Ammerman of the Corps, concerning the Corps' need to separate the 2006 from 2007 work in a new request for formal consultation on the 2007 work. He stated that we would receive another request for formal consultation by the end of the year. We emailed the Corps a map containing the positive results of goby surveys recently conducted in the action area thus confirming the need for formal consultation.

October 18, 2006 Telephone conversation between Lynn Roberts (Service) and Stein Coriell of Oscar Larson & Associates requesting that they re-send a description of the 2007 work separated from the emergency 2006, and re-send the original project description (containing both the 2006 and 2007 work) dated 9/5/06 and mailed on 9/7/06. We cannot find the document which Oscar Larson & Associates states they mailed on 9/7/06.

December 12, 2006 The Service received from Oscar Larson & Associates a project description for the 2007 and beyond activities.

February 7, 2007 The Service received an amended request for formal consultation from the Corps on the 2007 and beyond activities

February 23, 2007 Telephone conversation between Greg Goldsmith (Service) and Stein Coriell of Oscar Larson & Associates, requesting a map or description of all tidegates and culverts that are within the project area.

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February 27, 2007 The Service received a map from Oscar Larson & Associates showing all tidegates and culverts within the project area.

March 19, 2007 Telephone conversation between Greg Goldsmith (Service) and Stein Coriell of Oscar Larson & Associates, clarifying project description information.

March 20, 2007 Telephone conversation between Greg Goldsmith (Service) and Stein Coriell of Oscar Larson & Associates, clarifying project description and project timeframe limitations.

March 27, 2007 Electronic mail from Stein Coriell of Oscar Larson & Associates regarding the decision to split the project into two consultations and Corps permits, separating the sheet piling repair area from the remainder of the project as proposed.

March 28, 2007 Telephone conversation between Greg Goldsmith (Service) and Stein Coriell of Oscar Larson & Associates, discussing the split of the project and the requirement for two Corps permits. I stated that we would consult on both permits as we planned, prior to splitting the project. We also clarified the 10 year permit timeframe, the fact that sheet piling would only occur outside the levee, and that we would place a conservation measure in the description stating that if gobies are detected in the inboard ditch in the future, seasonal restrictions would be placed around that area for work that could occur in the water, or cause accidental levee material spills into the water.

April 3, 2007 Electronic mail from David Ammerman of the Corps asking for clarification of whether an additional request for consultation is required since the project is being split and covered by two separate permits due to the sheet piling at site #9. Service response from Greg Goldsmith indicated that a single biological opinion would be prepared to address both permits.

April 3, 2007 The Service received a letter dated March 28, 2007 from Oscar Larson & Associates containing an updated table of construction quantities for the levee repairs, with the quantities for site # 9 removed, where sheet piling is proposed to occur.

April 17, 2007 Telephone conversation between Greg Goldsmith (Service) and David Ammerman (Corps) clarifying permit file numbers for sheet piling in site #9 and remainder of project..

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## BIOLOGICAL OPINION

### Description of the Proposed Action

#### Project Description

Reclamation District 768 has obtained emergency funding from the Federal Emergency Management Agency to conduct repairs to damaged portions of approximately 4.9 miles, or 25,872 lineal feet of earthen or rock levees adjacent to Mad River Slough and Humboldt Bay. The project includes the currently needed repair of levees, as well as construction of temporary access roads, staging areas, construction of one slough crossing, placement of rock slope protection in areas damaged by winter storms in 2005-2006, and possible future repairs and maintenance within the ten year period of the permit. All levee repairs will not extend beyond the original footprint.

#### *Clearing and Grubbing, Riprap Removal, and Riprap Replacement*

In preparation for repair to damaged areas of the levees, approximately 7,780 tons of debris, slumped soil, concrete, woody debris, rooted vegetation, and other material would be excavated from the levee tops and faces and either hauled to off-project upland disposal sites, or re-used on site if suitable. Material would be removed by heavy equipment accessing the tops of levees or crossings, or by barge from the Bay side of levees. Floating containment booms, silt fences, or sediment curtains will be used in areas where debris has the potential to accidentally fall into the Bay or inboard ditches.

#### *Tidal Influenced Levee Repair*

The area of the damaged levee will be excavated to the lowest point of damage. Portions of the levees need to be re-contoured to accept rock slope protection fill. A level bottom bench will be created and earthen engineered backfill will be placed in 8-inch lifts and compacted to 90 percent relative compaction specifications. A layer of Type B rockslope protection fabric will be placed on the graded slope and anchored at the toe and top of the levee. A layer of light class (average 25 lb.) rock slope protection will be placed on the fabric, with ½ ton rock slope protection on top, forming the sloped outer face of the levee. The levees will be restored to original pre-storm dimensions of an average width at the top of 12.4 feet, with no increases in height or width.

#### *Top of Levee Erosion Repair*

Horizontal shearing or overtopping of the levee would be repaired by re-grading, compacting, and filling with an average of 12 inches of California Department of Transportation class 2 aggregate base or engineered fill on top of the levees compacted to 95 percent relative compaction. A clay-based soil surface will cover the engineered fill, and will be seeded.

#### *Nontidal Levee Repair*

The damaged portion of levees would be excavated to the lowest point of damage. A level bench would be created and backfilled with engineered fill in the same fill lifts and compaction

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methods as described in the section on tidal influenced levee repair above. Erosion control blankets would be used where appropriate.

*Levee Repair with Sheet Piling on Mad River Slough in Repair Site 9*

The areas of damaged levee in work Repair Site 9, as identified in Figure 2 in the March 28, 2007 update letter from Oscar Larson & Associates, directly north of State Highway 255 will be removed to the lowest point of damage. Sheet piles will be driven into the substrate on the outside face of the levee in Mad River Slough. A level bench will be created and backfilled as described in the section on tidal influenced levee repair above. Sheet piles will be designed to U.S. Army Corps of Engineers standards.

*Culvert and Tidegate Replacement*

There are a total of 10 culverts with tidegates and 7 open culverts identified within the project area. Currently, there are no plans to replace any of these structures. Throughout the ten year period of this project, there may be a need for repair or replacement of failed tidegates and/or culverts, in which case the replacements would be similar structures, placed at the same elevations and locations. No new tidegates or culverts are proposed as part of this project.

*Access and Staging Areas*

Small excavators could access the top of the levees, however most of the heavy equipment will conduct work from the landward side of the levee. Access to the levees will occur via both existing roads and the construction of 8,000 linear feet of temporary roads (12 feet wide) to provide access to levees across seasonal agricultural wetlands. Temporary roads and staging areas would be surfaced with an 8-inch layer of redwood bark over road stabilization fabric covering an average 6-inch layer of road base. Temporary access roads would branch off of existing farm roads. The borrow ditch would be crossed using existing crossing locations, and the construction of one temporary earth fill crossing. The crossing will consist of a culvert with earth fill cover, or a free span ditch crossing.

Approximately four locations totaling 2.5 acres of temporary staging areas will be constructed for storage of heavy equipment and construction materials in 2007, and an area of less than 1 acre for the remaining duration of the project. Upon completion of the project, all access and staging areas will be removed, mechanically tilled and planted with agricultural seed mix.

*Site Preparation, Excavation, Debris Removal*

In preparation for repair to damaged areas of the levees, approximately 7,728 tons of debris, slumped soil, concrete, woody debris, and other material would be excavated from the levee tops and faces and either hauled to off-project upland disposal sites, or re-used on site. Material would be removed by heavy equipment accessing the tops of levees or crossings, or by barge from the Bay side of levees. Floating containment booms, silt fences, or sediment curtains will be used in areas where debris has the potential to accidentally fall into the Bay or inboard ditches.

Conservation Measures

When used in the context of the Act, "conservation measures" represent actions proposed by the Federal agency that are intended to further the recovery of and/or to minimize or compensate for project effects on the species under review. Because conservation measures are pledged in the project description by the action agency, their implementation is required under the terms of the consultation (USDI Fish and Wildlife Service and USDC National Marine Fisheries Service 1998).

Recovery Measures

As part of this proposed action the Corps is not proposing to include any measures to further the recovery of the tidewater goby.

Minimization Measures

The Corps will ensure that the following measures to minimize project effects are included in the permit terms for the Reclamation District #768 project.

1. All repair activities that include the removal or replacement of levee materials shall incorporate coffer dams, containment booms, sediment curtains, or equivalent similar structures that meet sediment control requirements to reduce the discharge of materials into the bay and into the inboard ditches. These would be temporary structures to be removed after completion of construction.
2. No onsite refueling of equipment shall occur. No equipment shall be operated that visually displays sign of leaking fuels, lubricants or similar materials. Spill prevention measures shall be in place for all equipment.
3. No equipment shall operate in the wetted channels or on the mud flat on the bay side. All work shall be done from the top of the levee or from the landward side of the channel by loader, backhoe, or excavator. Construction activities shall be limited to the times in which low tides occur, or where construction activities occur above water.
4. Any material that slips beyond the levee configuration into the mudflats outside the levee, or the inboard borrow ditch and associated wetland channels shall be removed to staging areas and/or hauled off site.
5. All repair or restoration activities involving the levee shall include the placement of geotextile or similar erosion control material between the structural fill and the levee and the placement of the riprap. This will reduce or minimize the amount of erosion that may otherwise occur.
6. Prior to construction of the temporary crossing or any repair or replacement of tidegates or culverts, tidewater gobies will be excluded from the areas of impact by using seine netting stretching from substrate to water surface and bank to bank. The netting must be a knotless mesh of no greater than 0.125" openings in the largest dimension. Netting will

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be deployed in such a way that it excludes gobies from the construction area and keeps them from entering the construction zone until the structure is in place and all work within wetted channels for the purpose of constructing the crossing or repairing/replacing the culvert has been completed.

7. If future tidewater goby surveys result in discovery of new occupied locations within the project area, the Corps will contact the Service. The Service will identify those areas immediately adjacent to the goby locations that are to be avoided by conducting repair work outside of the period from July 1 to September 1. This seasonal restriction will aid in avoiding impacts to breeding fish during likely peak breeding periods.

#### Action Area

For purposes of this biological opinion, the action area includes approximately 4.9 miles of bay front levee, borrow ditches, tributary slough channels and the intervening agricultural and seasonal wetlands between the City of Arcata's Marsh and Wildlife Sanctuary property to the east, Mad River Slough at Highway 255/Samoa Boulevard Bridge to the west, and Liscom Slough to the north.

#### Time-frame of Biological Opinion

This biological opinion is valid from the date of issuance through April 15, 2017.

#### Status of the Species: Tidewater Goby

##### Legal Status

On February 4, 1994, the tidewater goby was listed as endangered throughout its entire historic range (59 FR 5494). We did not designate critical habitat at the time we listed this species, explaining that, "In the case of the tidewater goby, critical habitat is not presently determinable. A final designation of critical habitat requires detailed information on the possible economic effects of such a designation. The Service does not currently have sufficient information needed to perform the economic analysis."

On September 18, 1998, the Natural Resources Defense Council, Inc. filed a lawsuit in Federal District Court in California against the United States Department of the Interior et al. for failure to designate critical habitat for the tidewater goby. On April 5, 1999, Judge Carlos R. Moreno ordered that the "Service publish a proposed critical habitat designation for the tidewater goby in 120 days" (Natural Resources Defense Council, Inc. v. United States Department of the Interior et al. CV 98-7596).

On June 24, 1999, we published a proposed rule to: (1) delist populations of the tidewater goby in areas north of Orange and San Diego Counties, and (2) retain the tidewater goby populations in Orange and San Diego Counties as endangered based on our re-evaluation of the species' status throughout its range (64 FR 33816).

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On August 3, 1999, we proposed critical habitat for the tidewater goby in Orange and San Diego Counties (64 FR 42250); we did not propose critical habitat for this species throughout the rest of its geographic range in 1999 because we had proposed to delist the species where it occurred in areas north of Orange County. On November 20, 2000, the Service designated critical habitat for the tidewater goby in Orange and San Diego Counties (65 FR 69693). The critical habitat designation consisted of 10 coastal stream segments that collectively measured 9 linear miles (14.5 km) in length.

On November 7, 2002, we withdrew our proposal to delist the tidewater goby in areas north of Orange County (67 FR 67803). Therefore, the tidewater goby has remained listed as an endangered species throughout its historic geographic range since 1994.

On August 31, 2001, Cabrillo Power L.L.C. (Cabrillo) filed a lawsuit in the U.S. District Court for the Southern District of California challenging a portion of the final rule that designated the 10 critical habitat units in Orange and San Diego Counties. Specifically, Cabrillo objected to the critical habitat unit involving Agua Hedionda Lagoon and Creek. In a consent decree dated February 27, 2003, the U.S. District Court: (1) agreed to vacate the critical habitat designation involving Agua Hedionda Lagoon and Creek; (2) stated the nine other critical habitat units should remain in effect; (3) stated the final rule designating critical habitat was remanded in its entirety for reconsideration; and (4) directed the Service to promulgate a revised critical habitat rule that considers the entire geographic range of the tidewater goby and any currently unoccupied tidewater goby habitat. The consent decree requires that the Service submit proposed and revised rules to the Federal Register no later than November 15, 2006, and November 1, 2007, respectively.

A proposed revised critical habitat rule was published in the Federal Register November 28, 2006. The rule proposes to designate approximately 10,003 acres (4,050 hectares) range-wide. This is an increase of approximately 8,422 ac (3,408 ha) from the currently designated critical habitat, and a considerable expansion to the north. In the previous rule, critical habitat was only designated in Orange and San Diego County due to uncertainty over the future listing status of tidewater goby populations to the north. The proposed revised critical habitat is located in Del Norte, Humboldt, Mendocino, Sonoma, Marin, San Mateo, Santa Cruz, Monterey, San Luis Obispo, Santa Barbara, Ventura, and Los Angeles Counties, California.

#### Taxonomy and Life History

Accounts of the taxonomy, ecology, and reproductive characteristics of the tidewater goby are found in the following publications: final rule listing the species (USDI 1994), the proposed rule to delist northern goby populations (USDI 1999), the final rule withdrawing the Service's proposal to delist the northern goby populations (USDI 2002), the recovery plan (USDI 2005), and the proposed revised critical habitat rule (USDI 2006).

The tidewater goby is a small gray-brown fish rarely exceeding 2 inches (5 centimeters) in length. This species possesses large pectoral fins, and the pelvic, or ventral fins are joined to each other below the chest and belly from below the gill cover back to just anterior of the anus.

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Male tidewater gobies are nearly transparent with a mottled brownish upper surface. Female tidewater gobies develop darker colors, often black, on the body and dorsal and anal fins.

The tidewater goby is a short-lived species; the lifespan of most individuals appears to be about 1 year (Irwin and Soltz 1984, Swift et al. 1989). They prey opportunistically on benthic invertebrates including small crustaceans, insect larvae and snails (Swift et al. 1989, Irwin and Soltz 1984, Swenson and McCray 1996). They use three different foraging styles to capture prey: plucking prey from substrate surface, sifting sediment in their mouth, and mid-water capture (USDI 2005a).

The tidewater goby has only been found in California, and occurs in coastal brackish water habitats, such as lagoons, tidal bays and estuaries of rivers and streams along the coastline. The species is unique among Pacific coast fish in its restriction to brackish waters of coastal wetlands where the water is fairly still but not stagnant. They are weak swimmers concentrating in slack-water areas and generally avoiding swiftly moving waters. The species appears to spend all life stages in these brackish waters but may enter marine environments when flushed out by flooding or breaching of sandbars.

Tidewater gobies are most commonly found in areas with a muted or intermittent connectivity to tidal waters (Chamberlain 2006). Relatively low salinities, i.e., less than 10-12 ppt, are frequently characteristic of these habitats, however the species has been collected in salinities as high as 63 ppt (Goldsmith 2006). The species' tolerance of high salinities likely enables it to withstand some exposure to the marine environment, allowing it to recolonize nearby lagoons and estuaries following flood events (USDI 2006). Tidewater gobies also occur in freshwater streams up-gradient and tributary to brackish habitats; the salinity of these freshwater streams is typically less than 0.5 ppt. They can occur 1.6 to 7.3 miles (2.6 to 11.7 km) upstream from the ocean environment (Irwin and Soltz 1984, Swift et al. 1997, Chamberlain 2006, and Goldsmith 2006). Although the reasons for the variation in up-stream movement between one locality and another have not been determined, stream gradient and velocity are likely to be important factors.

Previous sampling for tidewater gobies has most commonly occurred in water less than 6 feet (2 m) deep (Wang 1982, Worchester 1992). Consequently, most observations have been made within this depth range. However, tidewater gobies were recently collected in Big Lagoon in Humboldt County during the breeding season at a water depth of 15 feet (4.6 m) (Goldsmith 2006).

Tidewater gobies have been documented in habitats with water temperatures that range from 46 to 77 degrees F (8 to 25 degrees C) (Irwin and Soltz 1984, Swift et al. 1989).

#### Current and Historical Range

The tidewater goby historically ranged from Tillas Slough in Del Norte County south to Agua Hedionda Lagoon in San Diego County. The species is currently found entirely within the original known range. The known localities are discrete lagoons, estuaries, or stream mouths separated by marine conditions. Natural gaps in the species' distribution occur where the

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coastline is steep and streams do not form lagoons or estuaries. Some of the largest gaps in distribution occur in Humboldt and Mendocino Counties, as well as in northern Sonoma County. From Tomales Bay southward to San Francisco, habitat loss and other anthropogenic-related factors have resulted in the creation of unnatural gaps in the species' distribution where the species is absent from several locations where it historically occurred (Capelli 1997). Several large natural and unnatural gaps occur between San Francisco Bay and San Diego County. Tidewater gobies have been documented at 134 localities within the historical geographic range of the species. Of these 134 localities, 23 (17 percent) are considered extirpated and 55 to 70 of the localities are naturally so small or have been degraded that long-term persistence is uncertain (USDI 2005).

#### Reproductive Biology

Reproduction can occur at all times of the year, however peak spawning usually occurs in the spring and then again in late-summer (Swenson 1999). Males excavate burrows, typically in clean coarse sand but also in mud, in which females lay an average of about 400 eggs per clutch. Females can lay 6 to 12 clutches per year (Swenson 1999). Males remain in the burrow to guard the eggs. Larvae emerge in 9 to 10 days, and live in a pelagic form, becoming benthic after reaching a length of about 0.5 to 0.7 inches (Moyle et al. 1995). Length of the pelagic larval period is not well studied, but is believed to last anywhere from a couple of days to two weeks or more (Camm Swift, personal communication).

#### Threats

Factors responsible for the historic decline and extirpation of goby populations and habitat include: human development in coastal salt marsh and riparian habitats, dredging, channelization of rivers, loss of habitat due to sediment deposition from upstream watershed disturbances, upstream water diversions that alter downstream flows, drought, groundwater overdrafting, and agricultural and sewage discharge (i.e., pollution) (USDI 1994). Existing threats to the goby include historic threats as well as artificial breaching of creek mouths and lagoons, extreme weather and streamflow conditions, predation by introduced species including mosquitofish (*Gambusia affinis*), sunfish (*Lepomis* spp.), and bass (*Micropterus* spp.), and competition with introduced species (e.g. yellowfin goby (*Acanthogobius flavimanus*) and chameleon goby (*Tridentiger trigonocephalus*)) (USDI 2005).

#### Conservation Strategy

The tidewater goby recovery plan provides a strategy for recovery that is designed to: (1) preserve the diversity of habitats throughout the range, (2) preserve the natural processes of recolonization and population exchange that enable population recovery following catastrophic events, and (3) preserve genetic diversity (USDI 2005). Recovery actions include: (1) protecting and enhancing currently occupied habitat, (2) conducting biological research to enhance the ability to integrate land use practices with tidewater goby recovery, (3) evaluating and implementing translocation where appropriate, and (4) increasing public awareness about tidewater gobies.

The recovery plan subdivides the geographic distribution of the tidewater goby into 6 recovery units, encompassing a total of 26 sub-units defined according to genetic differentiation and geomorphology. A description of each recovery unit and subunit with recommended tasks for recovery are provided in Appendix G of the recovery plan (USDI 2005).

The recovery plan states that downlisting may be considered when the following criteria have been met: (1) specific threats to each metapopulation, such as habitat destruction and alteration, introduced predators, and competition with introduced species have been addressed through the development and implementation of individual management plans that cumulatively cover the full range of the species, and (2) a metapopulation viability analysis based on monitoring over a 10-year period indicates that each Recovery Unit is viable. Downlisting criteria for the North Coast Recovery Unit specifies that 5 of the 6 identified sub-units must have at least 75 percent chance of persistence for a period of 100 years. The delisting criterion specifically calls for a 95 percent chance of persistence for a period of 100 years (USDI 2005).

#### Current Conditions Range-wide

The current conditions incorporate the effects of all past human and natural activities or events that have led to the present-day status of the species (USDI Fish and Wildlife Service and USDC National Marine Fisheries Service 1998).

#### Habitat: Amount, Distribution and Quality

The wetland habitat of individual tidewater goby localities varies on a site-specific basis, and is affected in part by local precipitation patterns and topography. For example, in coastal areas where the topography is steep and precipitation is relatively low, the habitats occupied by tidewater gobies may be a few acres in size, only extend a few hundred feet inland from the ocean, and backwater marshes may be small or absent. In coastal areas where topography is less steep and precipitation is more abundant the habitats occupied by tidewater gobies may be hundreds of acres in size, extend many miles inland, and contain extensive backwater marshes (U.S. Fish and Wildlife 2006).

Appendix E in the recovery plan describes for each of 151 localities of known and potential habitat within 26 recovery subunits, the relative amount and quality of existing habitat (USDI 2005). The amount of habitat is characterized by a description of the size of water bodies and available habitat: large, medium, and small. Large water bodies are those meeting at least one of the following general physical parameters: streams with channel bankfull widths in excess of 66 feet (20 meters) at any point and/or with estuarine (areas with salt water intrusion) habitats exceeding 0.6 mile (1 kilometer) in length; or lagoons and ponds larger than 5 acres (2 hectares) surface area. Medium sized water bodies include smaller streams less than 66 feet (20 meters) bankfull width and/or estuaries longer than 328 feet (100 meters) but less than 0.6 mile (1 kilometer) in length. Medium sized lagoons and ponds have a surface area between 1 (0.4 hectare) and 5 acres (2 hectare) in size. Small water bodies include the remaining streams, ditches, sloughs, lagoons, and ponds that are smaller than the dimensions of medium sized water bodies.

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Rangewide, forty-nine (32 percent) localities contain large water bodies, 44 (29 percent) contain medium sized water bodies, 55 (36 percent) contain small water bodies, and 3 (2 percent) localities were not ranked.

The relative quality of habitat is characterized by a statement of the need for habitat restoration at a particular locality: much, some or none. Sixty-one (40 percent) localities require much restoration, 80 (53 percent) require some restoration, 9 (6 percent) require no restoration, and 1 site was not ranked.

The distribution of currently occupied, historically occupied and potential habitat is discontinuous along the California coast. Several large natural gaps in habitat occur throughout the North Coast Unit where the coastline is steep and streams do not form lagoons or estuaries. The Greater Bay Unit contains unnatural gaps in suitable habitat due to habitat loss and anthropogenic-related factors that have degraded habitat and resulted in the extirpation of species from several historic sites. A large natural gap in habitat occurs in the north half of the Central Coast Unit. Both natural and unnatural gaps in habitat occur throughout the Conception, LA/Ventura and South Coast Units (USDI 2005).

*Population: Numbers, Distribution, and Reproduction*

The current tidewater goby population is known to occur from Tillas Slough in Del Norte County to Cocklebur Canyon in San Diego County, 9.2 miles (14.8 km) north of Agua Hedionda Lagoon. Tidewater gobies do not currently occur in Agua Hedionda Lagoon (USDI 2006). The recovery plan identifies the following 6 recovery units that encompass the historic and current geographic range of the species: North Coast Unit, Greater Bay Unit, Central Coast Unit, Conception Unit, LA/Ventura Unit, and South Coast Unit (USDI 2005).

Currently, there are no long-term monitoring programs in place for this species. Population dynamics are not well documented, and few data are available on the general size of goby populations. However, when present, tidewater gobies are frequently the most abundant fish species found at a site (Lafferty et al. 1999a). Population distribution and density can be highly variable within a site. Gobies have been reported in densities as high as 0-138 per square meter and as low as 0-4 per square meter (USDI 2005).

Female tidewater gobies are capable of producing as many as 400 eggs in a single reproductive effort. Female gobies frequently initiate more than one reproductive effort per year (Swenson, 1995). Reproductive success of each effort is likely highly variable, with some egg laying efforts completely failing.

The tidewater goby is known to have formerly inhabited at least 134 localities. In 2005, approximately 17 percent of the 134 documented localities are considered extirpated and 41 to 52 percent are naturally so small or have been degraded over time that long-term persistence is uncertain (USDI 2005). Recolonization of extirpated localities has been documented when extant populations are present within several kilometers (Holland 1992, Lafferty et al. 1999a, 1999b). However, recently tidewater gobies have been found in localities considered extirpated

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that are separated from the nearest population by 6 to 12 miles. These records suggest that distant movement and recolonization is possible (USDI 2005).

#### Current Conditions in the North Coast Sub-Unit 3

Sub-Unit 3 of the North Coast Recovery Unit is completely within Humboldt County. The sub-unit extends about 25 miles in length from the mouth of the Mad River south across Humboldt Bay to the Eel River. The Recovery Plan identifies five localities within Humboldt Bay watersheds. These localities include Freshwater Slough, Mad River Slough, McDaniel Slough/Klopp Lake, KATA Radio Station, and Jacoby Creek/Gannon Slough. These sites were known to exist prior to 2004, during development of the recovery plan. In addition, White Slough and Hookton Slough had goby detections that were unknown to the Service until 2005 (Cole 2004). From 2005 to the present, tidewater gobies have been located in at least five additional areas within Humboldt Bay, including Elk River, Hookton Slough, White Slough, Highway 101 Ditch, and Rocky Gulch. At the same time, the previously known localities of Klopp Lake and Liscom Slough have been resurveyed without detection. Currently, the status of the Mad River Slough, KATA Radio Station, Klopp Lake, and Highway 101 Ditch localities is unknown.

The localities within Humboldt Bay encompass approximately 500 to 1,000 acres, although due to the apparent transient nature of some of the populations, it is likely that the area inhabited by tidewater goby at any given time is probably somewhat smaller.

At this time, very little is known about the relationships between tidewater goby populations in Humboldt Bay. Research investigations focusing on genetic relationships within Humboldt Bay are underway to determine whether the known locations are inhabited by separate populations, or whether they are part of one larger metapopulation that uses the Bay as a means of travel from one suitable site to another.

Sub-Unit 3 also includes the separate Eel River locality, located approximately 8.7 miles south of Humboldt Bay, connected only via the Pacific Ocean. Extensive surveys have not been conducted to determine the extent of goby presence in the Eel River.

#### *Habitat Amount, Distribution and Quality*

The margins of Humboldt Bay and the Eel River in Humboldt County consist of generally broad low elevation benches historically dominated by mudflats, tidal marshes, estuarine channels, and brackish marshes. Within these complex estuaries, a substantial amount of historic salt and brackish marsh habitat was converted to agricultural, urban, and industrial uses through the construction of levees and drainage channels. This alteration in Humboldt Bay resulted in the loss of up to 10,000 ac (4,047 ha) of potentially suitable habitat (USDI 2006).

As a result of habitat alteration, several of the localities occupied by the tidewater goby do not contain natural sandbars between the ocean and habitat where the species is present. Instead, manmade water control structures, such as tidegates and culverts, exist between tidal waters and the locations where tidewater gobies occur. Many of these tidegates have been in place for

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decades, and in some cases, they provide habitat conditions similar to those created by the presence of a seasonal sandbar. In fact, most of the occupied tidewater goby habitat in both the Humboldt Bay and Eel River estuaries is separated from full tidal influence by tidegates.

The Eel River delta contains many small, slough channels and other backwater areas that provide suitable habitat for tidewater gobies, but it also contains larger channels open to direct tidal influence that do not provide suitable habitat. The Eel River is subject to infrequent but severe flooding. In addition to human-caused alterations of the estuary, major floods during the past century may have severely altered habitat in most channels, including the one known location. Much of the suitable habitat in the Eel River is on private lands, and consequently has not been surveyed for tidewater gobies.

*Population: Numbers, Distribution, and Reproduction*

Mad River Slough – This population was actually not found within Mad River Slough, but in the system of adjacent channels connected to McDaniel Slough, which is separated from Mad River Slough by tidegates. Gobies were first detected in 1988 by Dr. Camm Swift in the inboard ditch immediately north of the levee at the junction of State Highway 255 and Mad River Slough. As a result of that effort, approximately 50 gobies were collected and released, noted as “common”. This location was surveyed again in either 1999 or 2000 by Dr. Swift, and tidewater gobies were again detected. In addition, gobies were reported in 2001 from nearby Liscom Slough, which is a tributary slough to Mad River Slough approximately 1.3 miles north of where State Highway 255 crosses Mad River Slough. Tidewater gobies were not detected here in subsequent surveys by Service staff in 2003.

McDaniel Slough – This location includes the estuary of Janes Creek, as well as tributary slough and ditch channels that run the length of the levee system bordering the northeast portion of Humboldt Bay. This location is connected hydrologically with the Mad River Slough location described above. Tidewater goby surveys were conducted here by Service staff in 2005 with no detections. In 2006, gobies were found in two tributary channels to the inboard ditch along the levee system.

Arcata Marsh/KATA Radio station site – This site, 0.5 miles east of the project boundary, was surveyed in July 1975 by Dr. Camm Swift, with detections of 6 or 7 adult gobies, noted as “scarce”. This area was resurveyed in 1981 with tidewater gobies noted as “common”. This area was resurveyed by Service staff in 2003 with no detections.

Klopp Lake – This location, 0.25 miles east of the project boundary, was surveyed in 1982, resulting in detection of an unknown number of tidewater gobies. Since that time, the only known survey was conducted by Service staff in 2004, and did not result in any detections.

Gannon Slough – A tidally muted slough channel system, Gannon Slough includes channels of three small freshwater streams, as well as remnant bay channels. Tidewater gobies were first detected here in 2005, and have been present during several repeat visits in 2005 and 2006.

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During the initial detection, it is apparent that gobies were breeding in this location. An estimate of density was recorded for this observation, of 1-3 fish per square meter.

Jacoby Creek – The Jacoby Creek location may be unique among known tidewater goby locations within Humboldt Bay in that it is the only system open to full tidal fluctuation. The location has been surveyed several times between 1975 and 2004 with detections during most or all survey efforts.

Freshwater Slough – Service staff recently discovered gobies in a small elevated channel behind a leaking tidegate adjacent to Wood Creek, a tributary to Freshwater Slough.

Elk River – This location was first documented as containing tidewater gobies in a 2006 survey by Service staff.

White Slough and Hookton Slough, Humboldt Bay National Wildlife Refuge – These two locations, in the South Bay portion of Humboldt Bay, were first documented as containing gobies in 2000. The Hookton Slough location was re-located in 2004 by Service staff.

To date, monitoring has consisted primarily of conducting presence/absence surveys for the species throughout the north coast. In general, many areas that contain suitable tidewater goby habitat remain unsurveyed. There is a monitoring effort underway in the Gannon Slough system, about 1 mile to the southeast of the project site, conducting presence/absence surveys to monitor response to the installation of a new "fish-friendly" tidegate.

#### *Conservation Strategy for the North Coast Sub-Unit 3*

The recovery plan identifies the following management tasks for recovery: (1) monitor, (2) establish degree of genetic isolation of the sub-unit, (3) transfer gobies to the Mad River Estuary, Klopp Lake, Hookton Slough, and White Slough from the Mad River Slough, Jacoby Creek, Gannon Slough, KATA Station, and Freshwater Slough, (4) consider other sites around the margin of Humboldt Bay for transfer of gobies, and (5) consider localities for transfer from persisting sites after 2 years of absence (USDI 2005). No efforts at transferring gobies from one location to another have occurred to date in the north coast recovery unit.

#### **Status of Proposed Critical Habitat: Tidewater Goby**

##### Legal Status

As stated above, a proposed revised critical habitat rule was published in the Federal Register November 28, 2006, and included approximately 10,003 acres (4,050 hectares) range-wide.

##### Primary Constituent Elements

As part of our responsibility in designating critical habitat, the Service has identified the known physical and biological features essential to the conservation of the tidewater goby as primary constituent elements. Based on current knowledge of the life history, biology, and ecology of the

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tidewater goby, and the requirements of the habitat to sustain the essential life history functions of the species, we have determined that the primary constituent elements are:

1. Persistent, shallow (in the range of about 0.1–2 m), still-to-slow-moving, aquatic habitat most commonly ranging in salinity from less than 0.5 parts per thousand (ppt) to about 10–12 ppt, which provides adequate space for normal behavior and individual and population growth
2. Substrates (e.g., sand, silt, mud) suitable for the construction of burrows for reproduction;
3. Submerged and emergent aquatic vegetation, such as *Potamogeton pectinatus* and *Ruppia maritima*, that provides protection from predators;
4. Presence of a sandbar(s) across the mouth of a lagoon or estuary during the late spring, summer, and fall that closes or partially closes the lagoon or estuary, thereby providing relatively stable water levels and salinity.

#### Current Condition in Proposed Critical Habitat Unit HUM-3

The HUM-3 proposed critical habitat unit is located within and around Humboldt Bay and its tributaries, and totals 1,478 acres. This unit is comprised of several disjunct and interconnected estuary sloughs, streams, ponds, and ditches along the periphery of the bay. These channels collectively mimic, on a much reduced scale, habitats that were lost through past management practices. Many of the channels have muted tidal action compared to the open portions of the bay, due to water control structures placed as an interface between fresh and marine waters.

#### Conservation Strategy for Proposed Critical Habitat Unit HUM-3

We anticipate that the persistence of the tidewater goby source population within this unit may require protection of localities that are not occupied every year, but collectively form a source population through an interconnected complex of channels and shallow water habitats. That is, any of the several known occupied localities within a channel complex may be used by tidewater gobies during various years in response to dynamic habitat conditions during seasonal, annual, and longer term climatic cycles (e.g., drought). Data collected by the Service within the HUM-3 unit since 2002 suggests that in some locations where gobies were recently present, they were subsequently found to be absent. This data supports the idea that tidewater gobies within the unit appear to use locations intermittently.

The interconnectivity of habitat within this unit will reduce the chance of losing the tidewater goby along this portion of the coast, help conserve genetic diversity within the species, and help facilitate colonization of currently unoccupied locations.

Recently, significant restoration efforts have occurred or are anticipated to occur within habitats proposed for designation as critical habitat in this unit. The outcome of these restoration efforts for tidewater gobies is unknown, and will likely vary with their design features and location, but in general, net gains of goby habitat should result.

Known threats in this unit that may require special management include coastal development, channelization of habitats, non-point and point source pollution, and cattle grazing.

The threats related to coastal development are not well defined for this unit, but could result from a variety of construction related projects in and adjacent to proposed critical habitat. The threats related to channelization of habitats consist of creating, modifying, and maintaining artificial channels designed to drain agricultural lands of surface water. The resulting channels have had water control structures, usually tidegates, installed to protect these lands from tidal inundation. Pollution threats include the potential for oil spills, other spills associated with transportation on adjacent highways, and pollutants from nearby paper and lumber mills. Grazing threats in this unit include the potential for destruction of proposed critical habitat due to animal use of the channels, by trampling and eroding channel banks, aquatic vegetation, and modification of slough and stream channels. Humboldt Bay is designated as "Water Quality Limited" by the State Water Resources Control Board. These known threats are listed in detail in Appendix E of the recovery plan.

#### **Environmental Baseline (in the Action Area): Tidewater Goby**

Regulations implementing the Act (50 CFR §402.02) define the environmental baseline as the past and present impacts of all Federal, State, or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or early section 7 consultation, and the impact of State or private actions which are contemporaneous with the consultation process. As stated earlier, the action area for this consultation includes the following: approximately 5 miles of bay front levee, borrow ditches, sloughs and remnant channels, and the intervening farmland between California Department of Fish and Game property to the east and Mad River Slough at Highway 255/Samoa Boulevard Bridge to the west.

#### Conservation Strategy

The decline of the tidewater goby throughout its range can be attributed to threats that include upstream water diversions, dredging, pollution, siltation, urban development on adjacent lands, and competition/predation from introduced species (USDI 2004). These threats continue to affect the remaining goby populations. Small population numbers, coupled with a high level of fragmentation and apparent isolation of existing populations, has decreased the probability of genetic exchange between populations. It has also reduced opportunities for re-colonization of unoccupied suitable habitats. These factors likely affect goby populations that may occur in McDaniel Slough, as well as in Gannon Slough, Jacoby Creek, and other nearby populations.

Throughout Humboldt Bay, tidewater gobies occupy several known locations in a spatially distributed network that has the potential to change over time as new locations are colonized and others are extirpated. Because of this movement between habitat locations, it is important to maintain sites in a well distributed pattern throughout the bay. Currently, the only location in the northwestern portion of the bay known to be occupied is within the project area.

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Throughout the project area, there are seasonal breaks in hydrologic connections, causing periodic isolation of tidewater gobies, especially during the dry season. This condition can result in poor water quality, increased predation from wading birds, stranding from higher quality habitat, and in extreme conditions, desiccation of the habitat and resident fish. Connectivity to a variety of habitat, with the maintenance of a muted tidal cycle, is an important factor in maintaining opportunities for a network of tidewater goby populations.

#### Current Condition

##### *Habitat: Amount, Distribution and Quality*

McDaniel Slough and Mad River Slough form tidally influenced estuarine tributaries to Humboldt Bay. The sloughs are the result of Janes Creek, a perennial stream, other seasonal freshwater channels that meet areas of tidal flow in Bay mudflats and marsh wetlands being isolated behind human-created levees. There are currently four culverts with tidegates connecting the inboard borrow ditch (from the original construction of the levee) to the Mad River Slough at the western end of the project, and four culverts (three with tidegates) connecting the inboard ditch to the Bay at McDaniel Slough, the outlet for Janes Creek. Until recently, only two of the four culverts on the eastern opening had tidegates. One of the tidegates, which was detached during the last year or two, was replaced in December of 2006 or January of 2007. The span between the two outlets includes at least 4 locations where culverts provide continuity of the ditch at crossings, and one culvert connecting an area to the east of the McDaniel Slough opening.

In general, tidewater gobies are not found in completely open tidal systems, evidenced by the results of recent presence/absence surveys (Goldsmith 2006). Alternatively, tidewater gobies are more often found in areas with muted tidal flow. Within the action area, one open culvert to the Bay on the eastern end of the project, as well as any leakage from the other seven tidegates, results in a muted tidal flow into the system, and creates a gradient of brackish water conditions throughout the interior channels. The limited tidal inflow does not reach the highest elevation wetlands, but causes the lowest elevation areas nearest the culvert to remain close to marine conditions. In addition to the salinity gradient, conditions also include a gradient of velocity, substrate, vegetation, and other physical attributes such as channel morphology, which creates a habitat complexity that is favorable for tidewater gobies. Within the action area, the majority of the wetted channel areas appear to be suitable habitat that may vary in quality due to water quality, amount of tidal exposure, sediment composition, and structural complexity.

##### *Population: Numbers, Distribution, and Reproduction*

Tidewater goby breeding season range-wide is characterized as typically occurring in the spring and summer months (USDI 1994, USDI 2005a). However, evidence of breeding occurs year-round in some north coast estuaries, indicated by the presence of gravid females and sub-adult sized fish in all months of the year (McCourt, 2005). Direct evidence of breeding locations is limited in the Humboldt Bay region, but was documented in early July in Gannon Slough, 1.3 miles to the southeast of the project site (W. Pinnix, 2004, AFWO, pers. comm.).

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Service staff conducted surveys in McDaniel Slough and the surrounding connected water bodies within the eastern half of the project area on August 19, 2005 and on October 25, 2005. The purpose of the surveys in 2005 was to determine whether tidewater goby currently occupy the project area for the City of Arcata's Proposed McDaniel Slough Wetland Restoration. The restoration project covers approximately the eastern 25 percent of the levee repair project area. The 2005 surveys were completed using the approved presence/absence survey protocol for assessing project related impacts within suitable goby habitat (USDI 2005). Additional surveys were conducted throughout the project area from August 23-25, 2006. The purpose of the 2006 survey was to collect genetic data to determine whether there are significant genetic differences between tidewater goby populations within Humboldt Bay. The results from the 2005 surveys were negative for 4 seine hauls and dip-netting in 18 locations. No tidewater gobies were detected as a result of any surveys in 2005. During 2006, tidewater gobies were detected at two distinct locations within the project area. One location was 1.7 miles east of the junction of the levee with state highway 255. A total of 32 tidewater gobies in this location were found in an isolated depression behind a wooden water control structure approximately 100 meters north of the inboard ditch in a tributary channel. The salinity was as high as 65 ppt in the location where the fish were detected. The other location was 0.35 miles west of McDaniel Slough in a tributary channel from approximately 15 to 75 meters from the inboard ditch. In this location, a total of 9 gobies were captured. Throughout the project area, only a small portion has currently been surveyed. There are several tributary channels similar to those where gobies have been located that are inaccessible due to private ownership. Based on habitat suitability and locality of presence detections, it is likely that tidewater gobies inhabit portions of the project area in addition to those locations where gobies have been detected. Due to the limited nature of the presence/absence survey protocol, it is not possible to make estimates of population size from our survey results. In addition, the area of the borrow ditch associated with the levee is difficult to survey, due to deep water and soft sediment, which focused more survey effort in the tributary channels. In order to obtain information relative to population abundance, a much more extensive and intensive survey effort would need to occur.

#### **Environmental Baseline (in the Action Area): Tidewater Goby Proposed Critical Habitat**

##### Current Condition of PCEs

Within the action area, there are a total of 190 acres of proposed critical habitat. The majority of the proposed area encompasses the inboard ditch along the levee system, and the branched slough channels that are hydrologically connected to known locations where tidewater gobies have been found.

Proposed critical habitat for the tidewater goby includes four primary constituent elements that are essential to the conservation of the tidewater goby: persistent shallow (0.1-2 m) slow-moving aquatic habitat; substrates suitable for the construction of burrows; submerged and emergent aquatic vegetation, and; stable water levels due to formation of a sandbar. Within the HUM-3 unit, some human-made water control structures appear to provide the stability that would typically occur from the formation of a natural sandbar. These elements are all present within the area proposed for designation in the project area. Proposed critical habitat in this unit includes

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known locations of tidewater goby populations, as well as contiguous habitat located up-channel and down-channel from the known location.

Within the project area, approximately 14,304 linear feet (55 percent of the total project length) of the inboard ditch parallel to the earthen and rock bayfront levee are included as proposed critical habitat for the tidewater goby. In addition, many of the interior branched slough channels that connect to the inboard ditch are also in proposed critical habitat.

### **Effects of the Action**

This section presents an analysis of the direct and indirect effects of the proposed project on the tidewater goby and its proposed critical habitat, together with the effects of other activities that are interrelated and interdependent with the proposed action. These effects are evaluated along with the environmental baseline and the predicted cumulative effects to determine the overall effect to the species and its proposed critical habitat.

### **Likelihood of Species Presence**

Tidewater gobies have been found in Liscom Slough, tributary to Mad River Slough as recently as 2001, and in the western portion of the inboard ditch in 1988 (Camm Swift, pers. comm.). On August 23, 2006, surveys by USFWS personnel detected three tidewater goby from one of the branches of the inboard ditch along McDaniel Slough. Over the next two days, both in the same area, and another branch of the ditch to the west, a total of 27 and 3 gobies, respectfully, were captured (USFWS unpublished data). Much of the action area and surroundings has not been surveyed, but habitat similar to the occupied location discovered in 2006 exists throughout much of the action area. We assume that tidewater gobies can be present in any of the wetted channels based on survey history and habitat similarity.

### **Habitat Modification**

#### Scientific Basis for Habitat Modification

The decline of the tidewater goby throughout its range can be attributed to water diversions, dredging, pollution, sedimentation, and urban development on adjacent lands. These threats continue to affect the many of the remaining goby populations.

Excessive sedimentation may degrade substrate conditions needed for reproduction, and can result in the loss of habitat as shallow wetland areas fill in and become dewatered upland habitat (USDJ 1994, 2005).

#### Effects of the Action - Habitat Modification

There is an area of approximately 46,450 square meters of suitable habitat within the inboard ditch adjacent to the levee along the entire length of the project. Material used for the levee repair may accidentally fall into the inboard channels and ditches, and directly reduce and/or degrade the available habitat by filling in channels and ditches. We anticipate that these impacts

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will be temporary if they occur. Any material that falls off the levee and into the inboard ditch will be removed.

A section of the inboard ditch approximately 35 square meters will be subject to material being directly deposited into the inboard channel at the site of the temporary earth fill crossing, resulting in the complete loss of this habitat for the project duration. However, material from this crossing will be removed after the project completion, thus restoring the habitat to its original condition.

As a result of both accidental material spill into the ditch, and the construction and removal of the temporary crossing, breeding habitat may be inundated with sediment that could bury the habitat and/or make it unsuitable for breeding in the future.

### **Disturbance**

#### Scientific Basis for Disturbance Effect

The Service believes that disturbance can adversely affect gobies when work activities result in behavioral modifications that cause a loss or reduction in reproductive effort or survival of individuals of the species. The effects of disturbance depend on the frequency, timing, location, and intensity of the activities.

#### Effects of the Action - Disturbance

The proposal to allow heavy equipment to operate on the levees could result in disturbance to tidewater gobies. Should gobies be present in or very near the work area, accidental spill of levee material, or retrieval of that material could directly disturb gobies in the area. In addition, heavy equipment operation near or in water occupied by gobies could cause significant vibration of the substrate as well as movement of rock and other materials. As a result of material spill, retrieval, and vibration, gobies may move out of the impacted area, leaving desirable habitat. This can include abandoning breeding or foraging habitat, and fleeing areas of cover, which can expose individuals to predation, or otherwise directly modify important behaviors for survival.

In general, disturbance will be minimized by conducting work in wetted areas only at periods of low tide. During the installation of the access road crossing, disturbance will be minimized by excluding fish as stated in conservation measure (6) above. In addition, the use of sediment curtains to minimize sediment input to the wetted channel will be used while repairing severely damaged levee sections facing the inboard ditch.

Based on the information provided in the form of maps, site visits, and conversations with Stein Coriell of Oscar Larson and Associates, the permit applicant, we anticipate that less than 10 percent of the entire length of the inboard ditch will receive treatment that could cause disturbance to tidewater gobies. Therefore, the tidewater gobies associated with no greater than 2,500 feet of the inboard ditch would be subject to disturbance.

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## **Injury or Mortality**

### Scientific Basis for Direct Injury or Mortality

Tidewater gobies, their eggs or young can be directly injured or killed as a result of a variety of construction related activities:

1. Handling and removal of tidewater gobies from the work area: using fine-mesh seine nets, gobies will be excluded or relocated from the area to be dewatered for the construction of the temporary crossing. At this time, they are susceptible to being injured or crushed by workers while they are entangled in, or being removed from netting.
2. Dewatering of suitable habitat to construct the channel crossing: gobies are very small, especially in the planktonic larval form; it will not be possible to relocate and move all of the larval or small juvenile size classes to permanently watered habitat outside the work area. Any remaining fish in the section of channel proposed for dewatering may die from desiccation, predation, or other causes.
3. Trampling or crushing by people, equipment, or levee material while operating in suitable habitat: trampling or other physical damage to tidewater goby breeding burrows and the crushing of individuals is possible as a result of excluding fish from the constructed channel crossing and/or from levee material falling into the channel during levee repair work.
4. Excessive sedimentation of burrows containing eggs and adult males while their mobility is restricted.
5. Accidental spill of petroleum products or other waste materials into suitable habitat.

### Effects of the Action - Injury or Mortality

Dewatering of a portion of the inboard ditch for the construction of one temporary earth fill crossing may result in the direct mortality or injury of gobies, despite attempts to move fish out of the work area. Fish may also be injured or killed as a result of the process of excluding them from the area prior to dewatering.

Sedimentation entering the sloughs and associated channels and ditches from levee repair activities and construction of the single earth fill crossing may settle on occupied breeding burrows resulting in direct mortality to both adults and eggs.

Based on the mean value of an estimate of tidewater goby density in nearby Cannon Slough of 2 fish per square meter, we anticipate that as a result of the proposed construction and removal of one temporary earthen fill crossing, a total of 70 tidewater gobies may be killed or injured.

The likelihood that injury or death may occur as a result of accidental spill of oil products or other waste materials associated with the project is considered to be discountable due to the

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minimization measures required by the Corps as part of the permit condition implemented. Therefore, we assume none will occur.

### **Summary of Project Effects on Numbers, Distribution, and Reproduction**

The proposed action may affect the number and productivity of tidewater gobies in the action area by causing direct mortality of adults or young, temporarily reducing the functional suitability of habitat, and disturbance of breeding or non-breeding adults or young.

The proposed levee repair work will affect tidewater gobies in the inboard ditch along the length of the project area. This analysis of effects and our conclusions are based on the expectation that the minimization measures will be implemented. However, even with full implementation and compliance with the measures, adverse impacts to foraging and breeding tidewater gobies are likely to occur. Spilling of levee material into the ditch could kill gobies, causing a reduction in total number of gobies, as well as an impact on breeding gobies. Since tidewater gobies are primarily an annual species, impacts to the population may result in a short-term reduction in breeding adults. As a result, we expect that these actions will result in lower productivity of gobies in the available suitable habitat.

### **Effects to Proposed Critical Habitat**

#### Effects to Primary Constituent Elements

Activities such as rock placement within wetted channels, accidental spill of levee material into wetted channels, and construction of the temporary crossing of the inboard ditch channel can adversely affect primary constituent elements including persistent shallow slow-moving water, substrates suitable for construction of breeding burrows, and areas of submergent vegetation.

#### Effects to Proposed Critical Habitat Units

Individual critical habitat units are expected to provide conservation benefits to the species. We assume that goby presence is spatially correlated with the quantity, quality, and availability of primary constituent elements (USDI 2006). Activities that result in a reduction in the quantity, quality, and availability of primary constituent elements, such as a significant reduction due to fill of levee construction material, within a proposed critical habitat unit, can adversely affect the function and conservation role of the affected unit. We estimate that on average, no more than 1 meter encroachment into the inboard ditch will occur to place rock material for levee repair. Using the previously determined estimate of 10 percent of the total project length along the levee system (approximately 2,500 meters) for areas to be repaired with severe damage, an area of 2,500 square meters of proposed critical habitat may be removed. This represents less than one percent of the suitable habitat in proposed critical habitat unit HUM-3.

### **Cumulative Effects**

Cumulative effects include the effects of future State, tribal, local or private actions that are reasonably certain to occur within the action area considered in this biological opinion. Future

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Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act. Proposed projects on City of Arcata lands and California Department of Fish and Game lands within and adjacent to the action area will have a Federal nexus and require section 7 consultation with the Service. There are no other actions on private or State lands within the action area that are reasonable certain to occur; therefore, cumulative effects would not be likely for activities within the action area.

### Conclusion

After reviewing the current status of the tidewater goby, the environmental baseline for the action area, the effects of implementing the proposed action, and the cumulative effects, it is the Service's biological opinion that issuance of a permit for the Reclamation District 768's Levee Storm Damage Repair project, as proposed, is not likely to jeopardize the continued existence of the tidewater goby and is not likely to adversely modify proposed critical habitat.

The Service reached the non-jeopardy conclusion based on the following factors:

1. The proposed action will permanently remove less than 0.6 acre of suitable tidewater goby habitat.
2. The relatively small number of tidewater gobies expected to be affected by the proposed project. Minimization measures are likely to reduce the number of gobies directly injured or killed.
3. The McDaniel Slough goby population, as well as other nearby populations in the north portion of Humboldt Bay appears to be in relatively stable condition.
4. Adverse impacts from the proposed action are expected to be of limited duration within the overall project timeframe. The sunset date for this consultation is April 15, 2017.

The Service reached the no adverse modification conclusion based on the following factors:

1. The proposed action will permanently remove a minimal amount (less than 0.6 acre) of proposed critical habitat for the tidewater goby. Proposed critical habitat unit HUM-3 contains 1,478 acres of potentially suitable habitat. Therefore, less than one percent of suitable habitat in proposed critical habitat unit HUM-3 will be impacted by the proposed project.
2. There are an estimated 190 acres of proposed critical habitat within the action area. The loss of no more than 0.6 acre of habitat containing primary constituent elements will not significantly alter the intended function and conservation role of the HUM-3 proposed critical habitat unit for the species.

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## INCIDENTAL TAKE STATEMENT

### INTRODUCTION

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the taking of endangered and threatened species, respectively, without special exemption. Take is defined as harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering. Harass is defined by the Service as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance the terms and conditions of this Incidental Take Statement.

The measures described below are non-discretionary, and must be undertaken by the Corps so that they become binding conditions of any grant or permit issued to an applicant, as appropriate, for the exemption of 7(o)(2) to apply. The Corps has a continuing duty to regulate the activity covered by this incidental take statement. If the Corps (1) fail to assume and implement the terms and conditions of (2) fail to require the applicant to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, the Corps must report the progress of the action and its impact on the species to the Service as specified in the incidental take statement. [50 CFR 402.14(i)(3)]

### AMOUNT OR EXTENT OF TAKE ANTICIPATED

Deriving estimates for the number of tidewater gobies within the action area is difficult because of seasonal changes in distribution and abundance due to constantly varying environmental conditions. In addition, tidewater goby density estimates can be extremely variable depending upon sampling method, location within a site, vegetation, and substrate (USDI 2005b). Survey efforts for project related purposes are generally confined to presence/absence surveys. Consequently, anticipating the precise number of tidewater gobies that may be taken as a result of the proposed action is difficult. We based the anticipated amount of take on the past survey efforts in McDaniel Slough and estimated peak densities from similar nearby occupied breeding habitat.

The Service anticipates incidental take in the form of:

**Harassment** – due to disturbance of 200 breeding adults within the first year of construction, and disturbance of up to 10 breeding adults annually for the remaining 9

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years of the project; and

**Harm** – due to injury or death and loss of 0.6 acres of suitable habitat from sedimentation of breeding sites, dewatering of habitat, exclusion from a temporary crossing by seining of individuals, of a total of no more than 70 individuals throughout the duration of the ten year project term.

### EFFECT OF THE TAKE

In the accompanying biological opinion, the Service determined that this level of anticipated take is not likely to result in jeopardy to the tidewater goby, or destruction or adverse modification of proposed critical habitat for the tidewater goby.

### REASONABLE AND PRUDENT MEASURES

The Service believes the impacts of the proposed action largely will be minimized by compliance with measures incorporated in the project design. Consequently, no reasonable and prudent measures are necessary.

### TERMS AND CONDITIONS

As mentioned above, the Service considers the measures incorporated in the project design to be sufficient to minimize take of the tidewater goby; therefore, no terms and conditions are necessary.

If during the course of the action the level of incidental take is exceeded, such incidental take represents new information requiring reinitiation of consultation and review of the need for reasonable and prudent measures. The Corps must immediately provide an explanation of the causes of the taking and review with the Service the need for possible inclusion of reasonable and prudent measure.

### MONITORING REQUIREMENTS

In order to monitor the impacts of incidental take, Corps must report the progress of the action and its impacts on the species to the Service, as specified in the incidental take statement. The reporting requirements are established in accordance with 50 CFR 13.45 and 18.27 and specified as follows:

1. At the end of each calendar year, the Corps will provide to the Service the results of any surveys for tidewater gobies.
2. At the completion of work requiring the construction and removal of the temporary inboard ditch crossing, the Corps will provide to the Service the results of fish exclusion efforts, specifically whether any tidewater gobies are detected.

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## REPORTING REQUIREMENTS

Upon locating a dead or injured tidewater goby, initial notification must be made to the Service's Division of Law Enforcement in Chico, California at (530) 342-8724 and the Arcata Fish and Wildlife Office at (707) 822-7201 immediately, and in writing within three (3) working days. Notification must include the date, time, and location of the carcass; cause of death or injury, if known; and any other pertinent information. Care must be taken in handling injured animals to ensure effective treatment and care and in handling dead specimens to preserve biological material in the best possible state for later analysis of cause of death. The finder has the responsibility to ensure that evidence intrinsic to the specimen is not unnecessarily disturbed, unless to remove it from the path of further harm or destruction. Should any treated listed species survive, the Service should be contacted regarding the final disposition of the animals. In the case of take or suspected take of tidewater gobies not exempted in this biological opinion, the Arcata Fish and Wildlife Office and the Division of Law Enforcement shall be notified within 24 hours.

## COORDINATION OF INCIDENTAL TAKE WITH OTHER LAWS, REGULATIONS, AND POLICIES

The incidental take statement provided in this biological opinion satisfies the requirements of the Act. The Service will not refer the incidental take of any migratory bird or bald eagle for prosecution under the Migratory Bird Treaty Act of 1918, as amended (16 U.S.C. §§ 668-668d), if such take is in compliance with the terms and conditions, including the amount and/or number specified herein.

## CONSERVATION RECOMMENDATIONS

Sections 2(c) and 7(a)(1) of the Act direct Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species and the ecosystems upon which they depend. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

Anticipating future projects within suitable habitat surrounding Humboldt Bay that may require a Corps permit, the Corps should fund surveys for presence/absence of tidewater gobies.

In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or benefiting listed, proposed, or candidate species or their habitats, the Service requests notification of the implementation of any conservation recommendations.

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## REINITIATION NOTICE

This concludes formal consultation on the proposed Reclamation District 768's Levee Damage Repairs project. As provided in 50 CFR 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operation causing such take must cease pending reinitiation. If you have any questions regarding this biological opinion, please contact Greg Goldsmith of my staff at (707) 822-7201.

Sincerely,

Signature on File

Michael M. Long  
Field Supervisor

cc:

US Army Corps of Engineers, Eureka, CA  
Oscar Larson & Associates (Attn: Stein Coricell)



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Swift, C. 2006. Los Angeles County Museum of Natural History, Los Angeles, California. April 2, 2006. "Length of the pelagic larval period is not well studied, but is believed to last anywhere from a couple of days to two weeks or more"

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UNITED STATES DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
NATIONAL MARINE FISHERIES SERVICE  
Southwest Region  
501 West Ocean Boulevard, Suite 4200  
Long Beach, California 90802-4213

In response refer to:  
2007/00730

APR 18 2007

Lieutenant Colonel Craig W. Kiley  
District Commander  
San Francisco District  
U.S. Army Corps of Engineers  
1455 Market Street  
San Francisco, California 94103

**EXHIBIT NO. 8**

**APPLICATION NO.**

1-03-004-A1

RECLAMATION DISTRICT 768

NOAA FISHERIES INFORMAL  
CONSULTATION (1 of 5)

Dear Lieutenant Colonel Kiley:

On April 11, 2007, NOAA's National Marine Fisheries Service (NMFS) received a letter from Ms. Jane Hicks, U.S. Army Corps of Engineers (Corps), requesting initiation of informal consultation for the issuance of a 10-year (2007-2016) Clean Water Act section 404 permit (File Number 400235N) to Reclamation District 768 (District), pursuant to section 7(a) (2) of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 *et seq.*), and its implementing regulations (50 CFR Part 402). In addition, pursuant to the Magnuson-Stevens Fishery Conservation and Management Act (50 CFR Part 600), the Corps also initiated consultation on Essential Fish Habitat (EFH) for species managed under the Pacific Coast salmon, Pacific Coast groundfish, and Coastal Pelagic species Fishery Management Plans, and determined the Project would not adversely affect EFH. NMFS agrees with the Corps' determination, and therefore, EFH consultation is not warranted.

The District proposes to repair and maintain the 4.9-mile earthen and rock levee and appurtenances (*e.g.*, culverts, tide gates, levee access) adjacent to Mad River Slough and Humboldt Bay, California (Project). The Project is needed to prevent flooding by seawater from Humboldt Bay, as well as facilitate flow of freshwater in Humboldt Bay of: (1) approximately 1,600 acres of agricultural lands, homes, farm buildings; and (2) public utilities and roads. This letter constitutes completion of informal consultation for the following threatened species and their critical habitats: (1) Southern Oregon/Northern California Coast (SONCC) coho salmon (*Oncorhynchus kisutch*; June 28, 2005, 70 FR 37160); (2) California Coastal (CC) Chinook salmon (*Oncorhynchus tshawytscha*; June 28, 2005, 70 FR 37160); (3) Northern California (NC) steelhead (*Oncorhynchus mykiss*; January 5, 2006, 71 FR 834); (4) SONCC coho salmon critical habitat (May 5, 1999, 64 FR 24049); (5) CC Chinook salmon critical habitat (September 2, 2005, 70 FR 52488); and (6) NC steelhead critical habitat (September 2, 2005, 70 FR 52488).

## PROPOSED ACTION

The District proposes to: (1) repair 7,877 feet (ft) of the levee during 2007; and (2) repair and generally maintain the 4.9-mile levee and appurtenances (*e.g.*, culverts, tide gates, levee



accesses) during 2008-2016. The footprint of the repaired levee will match the original levee footprint. All work will be done from the top of the levee by loader, backhoe, excavator, and dump trucks, conducted between April 15 and October 15, and consist of some or all of the following components.

## **General Levee Repair and Maintenance Components**

### 1. Construction of Access Roads, Staging Areas, and Crossings

The levee is accessible from State Highway 255, Jackson Ranch Road, Old Samoa Road, and the Arcata Marsh and Wildlife Sanctuary. In 2007, approximately 8,000 linear feet of existing temporary roads (12 feet wide) will be upgraded to allow heavy equipment to cross seasonal agricultural wetlands and access the levee by crossing the borrow ditch at the three existing access ramps, and at a single earthen-backfilled culvert temporary crossing. Four staging areas (25,000 square feet in size), will also be created adjacent to the levee access for the contractors to store equipment and materials. After 2007, the staging area size will be limited to 10,000 square feet. The temporary access roads and staging areas would be surfaced with 6 inches of road base over road stabilization fabric. At the end of the Project each year, the road base and stabilization fabric will be removed, and the pasture surface will be restored and reseeded.

### 2. Site Preparation and Debris Removal

To prepare damaged areas for repair, inorganic debris (*e.g.*, metal, plastic), slumped soil, concrete rubble, woody debris, and other materials would be removed from the levee top as well as the seaward and landward faces. Concrete rubble, clay roof tiles and other debris unsuitable for reuse will be hauled to an upland disposal site outside of the Project area.

### 3. Repair of Seaward Side of Levee

The area of the damaged levee will be excavated to the lowest point of damage. A level bench will be created and backfilled with engineered fill in 8-inch lifts maximum. Each lift will be compacted. Geotextile fabric will be placed on the graded soil slope of the levee and anchored at the toe and top, followed by placement of rock slope protection (RSP). All non-tidal disturbed earth surfaces will either be hydroseeded or broadcast seeded.

### 4. Repair of Landward Side of Levee

Repair of the landward side of the levee will be the same as for the seaward side. In addition, in order to repair a vertical crack or fissure perpendicular to the ground surface, the area surrounding the fissure will be excavated to a 4-foot minimum or to the terminus of the fissure, whichever is greater. The excavated area will then be backfilled. On slopes greater than or equal to 1:1, coconut/straw erosion control blankets would be installed on all disturbed earth surfaces.

### 5. Repair of Top of Levee Erosion

The eroded levee surface will be re-graded, compacted, and an average of 12 inches of California Department of Transportation Class 2 aggregate base or engineered fill will be imported, placed on top of the levee, and compacted.

### 6. Maintenance, Repair, or Replacement of District Culverts or Tide Gates

There are currently 11 culverts with tidegates which are under the jurisdiction of the District, however only seven of those will be maintained, repaired or replaced as a component of this Project. The four 48-inch culverts and tidegates in the levee at McDaniel Slough are excluded from this Project and, therefore, from this consultation. The Project includes the repair or potential replacement of: (1) three 36-inch culverts and one 48-inch culvert, all with tidegates, in the levee south of Highway 255 adjacent to private property; (2) two 24-inch culverts with tidegates in the inboard ditch under levee access ramps adjacent to California Department of Fish and Game property; and (3) one 36-inch culvert with a tidegate in the levee at Jackson Ranch Road. All culvert and tidegate maintenance, repair or replacement will take place at low tide. If a culvert or tidegate becomes blocked with debris, the debris will be removed and disposed of offsite. If complete replacement is required, equipment mounted on the levee will excavate the levee to remove and replace the culvert and tidegate, and will install a new one of the same size and at the same elevation. All work will be completed within one tidal cycle. RSP will be placed around the tidegate, and the area will be backfilled as described above for levee repair.

#### **Repairs in 2007**

In 2007, the District proposes to repair 7,877 ft of the levee along the Arcata Bay and the Mad River Slough that were damaged during the 2005 and 2006 winter storms. The District proposes to remove 898 cubic yards (cy) of material (to prepare damaged areas for repair), and to place approximately 3,631 cy of engineered fill, and 8,126 cy of RSP. There will be no repair or replacement of tidegates or associated culverts in 2007.

#### **Repairs in 2008-2016**

The District proposes a maximum of 5,000 cy of engineered fill and 7,210 cy of RSP to be placed during repair and maintenance of the 4.9-mile levee and appurtenances in 2008-2016. The District estimates that approximately 500 ft of the levee will likely be repaired annually, requiring placement of approximately 500 cy of engineered fill and 721 cy RSP. None of the seven culverts, or their associated tidegates, has been identified as needing repair or replacement in the near future, however future storm damage may require such actions.

#### **Impact Minimization Measures**

The following impact minimization measures will be adhered to during Project implementation: (1) no equipment will enter the wetted channel of existing drainage courses or tidal areas; (2) when the chance of rainfall within 3 days is 50 percent or greater (National Weather Service forecast for Eureka, California, available at <http://www.noaa.gov/>), the contractor will stabilize

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all existing disturbed earth surfaces on the levee and will not initiate any new work; (3) any construction materials that are accidentally sloughed off into the bay, slough, or other wetland areas during construction will be immediately removed; (4) all repair activities that include the removal or replacement of levee materials (whether for structural purposes or protection), will incorporate silt fences, floating turbidity curtains, or equivalent similar structure that meet sediment control requirements to reduce the discharge of materials into the bay, slough or other wetland areas; and (5) no fueling of equipment will occur on the levee, and equipment will be maintained to ensure that there is no leakage of fuels, lubricants or other similar material.

## PROJECT EFFECTS

SONCC coho salmon, CC Chinook salmon, and NC steelhead migrate and rear within Arcata Bay. Arcata Bay and Mad River Slough, adjacent to the Project site, may be a migration corridor and may provide rearing habitat for all three listed salmonids. In addition, this area of Humboldt Bay is designated critical habitat for the three listed salmonids.

Because heavy equipment will not operate in the bay or wetted channel, and all work will occur during low tide or above mean high water, the Project is not expected to result in direct effects to listed salmonids.

In addition, because: (1) all repair activities that include the removal or replacement of levee materials will incorporate sediment control; (2) all construction activities on the seaward side of the levee will be limited to low tide or above mean high water; and (3) all work will be conducted during dry weather conditions, NMFS expects sediment delivery to Arcata Bay and Mad River Slough to be insignificant, and in turn, result in insignificant effects to the listed salmonids and their designated critical habitats.

## CONCLUSION

Based on our review of the documents you have provided, site visits, conference calls, and meetings, NMFS concurs with the Corps' determination that the proposed Project is not likely to adversely affect Federally threatened SONCC coho salmon, CC Chinook salmon, NC steelhead, or their designated critical habitats.

This concludes ESA consultation in accordance with 50 CFR § 402.14(b)(1) for the proposed Project. Further consultation may be required if: (1) new information reveals effects of the action may affect listed species or critical habitat in a manner or to an extent not previously considered; (2) current Project plans change in a manner that causes an effect to the listed species or critical habitat that was not previously considered; or (3) a new species is listed or critical habitat is designated that may be affected by the identified action.

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Please contact Ms. Diane Ashton at (707) 825-5185, or via e-mail at [diane.ashton@noaa.gov](mailto:diane.ashton@noaa.gov) if you have any questions concerning this consultation.

Sincerely,

/s/



Signature on File



Rodney R. McInnis  
Regional Administrator

cc: Jane Hicks, Corps, San Francisco, California  
David Ammerman, Corps, Eureka, California  
Stein Coriell, Oscar Larson & Associates, Eureka  
Vicki Frey, CDFG, Eureka, California  
Copy to File: ARN 151422SWR2007AR00063

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## CALIFORNIA COASTAL COMMISSION

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<b>EXHIBIT NO. 9</b>
<b>APPLICATION NO.</b>
1-03-004-A1
RECLAMATION DISTRICT 768
STAFF REPORT FOR CDP
NO. 1-03-004 (1 of 18)

Hearing Date:  
Commission Action:

March 17, 2005  
**Approved with**  
**Conditions, March 17, 2005**

**ADOPTED FINDINGS**

APPLICATION NUMBER: **1-03-004**

APPLICANT: **Reclamation District #768; Lois Wallace, Domingo Santos, and Earl Moranda Directors**

PROJECT LOCATION: 1,500- to 1,600-acre Reclamation District located north and south of Highway 255 along the northern shoreline of the Arcata Bay lobe of Humboldt Bay and the banks of Mad River Slough, Arcata Bottom area, Humboldt County

PROJECT DESCRIPTION: Repair of a 230-foot-long breach in a portion of the levee north of Hwy 255, replacement of three 36-inch-diameter culverts and floodgates, and a ten-year permit for routine repair and maintenance activities on the levee system.

LOCAL APPROVALS: Humboldt County Planning approval, April 17, 2003

SUBSTANTIVE FILE DOCUMENTS: Humboldt County Local Coastal Program

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**STAFF NOTES:****1. Adopted Findings**

The Commission held a public hearing and approved the permit at the meeting of March 17, 2005. The adopted findings for approval differ from those contained in the written staff recommendation dated November 4, 2004. At the hearing, the staff presented an addendum that modified the staff recommendation to (1) incorporate certain changes to Special

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RECLAMATION DISTRICT #768  
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Condition No. 2 and the corresponding findings, (2) correct certain factual errors in the project description finding regarding the extent of flooding that occurred as a result of a previous breaching of the Mad River levee and the emergency permit that had been issued to repair the breach. The Commission adopted the changes to the staff recommendation in their entirety.

The following resolution, conditions, and findings were adopted by the Commission on March 17, 2005 upon conclusion of the public hearing.

**2. Standard of Review**

The proposed development will be performed on levees located within state tidelands and public trust lands in Humboldt County. Pursuant to Section 30519 of the Coastal Act, the Coastal Commission retains jurisdiction over the review and issuance of Coastal Development Permits in these areas even though the County of Humboldt has a certified Local Coastal Plan. The standard of review for projects located in the Commission's original jurisdiction is Chapter 3 of the Coastal Act.

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**RESOLUTION TO APPROVE THE COASTAL DEVELOPMENT PERMIT:**

The Commission hereby approves the coastal development permit on the ground that the development as conditioned, will be in conformity with the policies of Chapter 3 of the Coastal Act. Approval of the coastal development permit complies with the California Environmental Quality Act because either: (1) feasible mitigation measures and/or alternatives have been incorporated to substantially lessen any significant adverse effects of the amended development on the environment; or (2) there are no feasible mitigation measures or alternatives that would substantially lessen any significant adverse effects of the amended development on the environment.

**II. STANDARD CONDITIONS See attached.**

**III. SPECIAL CONDITIONS**

**1. Length of Development Authorization**

Development authorized by this permit is valid for five (5) years from the date of Commission approval (until March 17, 2010). One request for an additional five-year

period of development authorization may be accepted, reviewed and approved by the Executive Director for a maximum total of 10 years of development authorization, provided the request would not substantively alter the project description, and/or require modifications of conditions due to new information or technology or other changed circumstances. The request for an additional five-year period of development authorization shall be made prior to March 17, 2010. If the request for an additional five-year period would substantively alter the project description, and/or require modifications of conditions due to new information or technology or other changed circumstances, an amendment to this permit will be necessary.

2. **Standards for Repair and Maintenance Work**

- a. Armoring Rock: All new revetment material to be used shall consist of either clean quarry rock or concrete rubble materials that are free of asphalt and waste materials. The revetment materials shall not be greater than three feet in any one direction or smaller than one cubic foot in size. All exposed reinforcement bar shall be removed prior to installation of any concrete rubble riprap. Armoring rock shall be stockpiled outside seasonal wetlands and transitional agricultural lands. No rock shall be placed outside of the existing footprint of the levee system.
- b. Fill Material: Only dry, clean fill may be used for levee repairs and must be free of debris (vegetation, asphalt etc.). Fill material shall be stockpiled outside of seasonal wetlands or transitional agricultural lands. No fill shall be placed outside of the existing footprint of the levee system.
- c. Placement of Materials: Materials placed on the levees to be repaired, including all riprap, shall not extend into the slough or Arcata Bay beyond the footprint of the levee as it existed before the repair. The determination of the location of the front of the levee shall be made through a 'string line' method, whereby the portions of the levee that are not in need of repair or restoration on each side of the areas that is in need of repair shall be used to determine the maximum extent of the repair. Revetment material shall not be end-dumped, but placed in an interlocking fashion along the levee face to avoid spreading beyond the former footprint of the levee and to provide a structurally integrated revetment.
- d. Revegetation Of Disturbed Areas: When repair and maintenance activities disturb more than 100 square feet of area within the existing footprint of the levee, the disturbed area shall, immediately upon completion of the repair and maintenance activity, be revegetated with appropriate native plants. Naturalized plants, approved by the Department of Fish & Game, may be used to revegetate the upland portions of the site.

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**RECLAMATION DISTRICT #768**  
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- e. Disposal of Excess Material and Vegetation: All construction debris and cut vegetation, except grass clippings from mowing the top of the levee, shall be removed from the site and disposed of only at an authorized disposal site. Side casting of such material or placement of any such material within Arcata Bay, Mad River Slough, any wetland area including the grazed seasonal wetlands inboard of the levees is prohibited.
- f. Installation of Silt Fences: Silt fences or equivalent devices shall be installed along the perimeter of each repair site prior to the placement of any fill materials to reduce the discharge of fill materials and sediment laden runoff into Arcata Bay, Mad River Slough, or the wetlands on the inboard sides of the damaged levees. The installed silt fences or equivalent devices shall be maintained during project construction and removed upon completion of the project.
- g. Spill Prevention: To prevent and address spills of equipment fuels, lubricants, and similar materials, the repair work shall incorporate the following measures: (a) no equipment fueling shall occur on the site or elsewhere along the levees; (b) all equipment used during construction shall be free of oil and fuel leaks at all times; (c) oil absorbent booms and/or pads shall be on site at all times during project construction and deployed if necessary in the event of a spill; and (d) all spills shall be reported immediately to the appropriate public and emergency services response agencies.
- h. Wet Season Work Prohibited: Repair and maintenance activities authorized by this permit shall only be performed during the dry season (April 15 to October 15).
- i. No Wetland Fill: No permanent or temporary fill of tidal wetlands or of the inboard ditch or any other seasonal wetland is allowed by this permit. Ditch crossings must be accomplished by temporary bridging that must be removed within one week of completion of work on that portion of the levee served by the bridge.
- j. Pre-construction Contractor Training: Prior to the commencement of any repair and maintenance activities authorized by this permit which have not yet been undertaken, the Applicant shall ensure that the Contractor understands and agrees to observe the standards for work outlined in this permit and in the detailed project description included as part of the Applicants submittal and as revised by these conditions.

- k. Monitoring: Repair and maintenance activities shall be monitored by a qualified Civil Engineer, or equivalent expert, during the dry season no less frequently than every three months to ensure that work performed under this permit is consistent with the terms of the permit. The Monitor shall have the authority to stop work and to recommend remediation of ongoing work in order to comply with the terms and conditions of this permit.
- l. Annual Reports: The Applicant shall submit an annual report to the Executive Director by November 15 annually for the life of the permit. The report shall describe the repair and maintenance activities completed during the reporting period and identify potential activities for the coming year.
- m. Annual Inspection: The levee system shall be inspected by a qualified Civil Engineer or equivalent, to identify areas where repair and maintenance work will be needed within the coming year. The location and type of work needed shall be described in a written report. The Engineers report shall be submitted to the Reclamation Board of Directors, the district's biologist and to the Executive Director. The report is due annually on November 15. If, based on this report, the biologist identifies any work areas that are within potential habitat areas, the biologist shall survey those areas for the presence of Point Reyes Bird's Beak or Humboldt Bay Owl's Clover. If either of these species are found in the area scheduled for disturbance, the plants shall be avoided.

#### IV. FINDINGS AND DECLARATIONS

The Commission finds and declares as follows:

##### A. Project Description.

The proposed project includes three separate, but related, elements as discussed below. All of the proposed work will be, or has already been, done by Reclamation District No. 768 on the 4.9 miles of earthen levees included within the district boundaries. The District itself was officially formed by resolution of the Humboldt County Board of Supervisors in 1904 and is considered a "Special District" under the definition found in Section 30118 of the Coastal Act. The district is responsible for maintaining the levees and appurtenant development (e.g., culverts, flood gates, levee access etc.) within its boundaries. The levee system exists to protect approximately 1,500 to 1,600 acres of agricultural land, homes, farm buildings, public utilities and roads (See Exhibit A, Location Map).

**Project Components**

**Follow-up Permitting for Culvert Replacement Emergency Permit Nos. 1-03-070-G and 1-04-017-G:** The first part of the project is a follow up permit to two Emergency Permits granted by the North Coast District Office in 2003 and 2004 for the replacement of three failing corrugated metal culverts and floodgates located at the west end of the levee system along Humboldt Bay and south of State Highway 255 (see Exhibit No 1). The failed culverts were replaced with the same type and size of culverts and floodgates, with clean armoring rock re-installed around the outboard side of the levee (adjacent to Humboldt Bay), consistent with the conditions placed on the Emergency Permits specifying the type of materials to be used in the repair of this section of the levee.

**Follow-up Permitting for Major Levee Breach Repair Emergency Permit No. 1-04-060-G:** On December 23, 2003, a combination of extraordinarily high tides and 45 mile-per-hour (mph) winds caused a 230-foot-long breach in a portion of the levee located north of Highway 255 (Please see Exhibit A. This breach resulted in the flooding of about 600 acres of pasture and a local County Road and was temporarily contained by the installation of large “water bag” dikes. Emergency Permit No. 1-04-060-G was subsequently obtained from the North Coast District Office for repair of the breach along the original alignment with an earthen levee and outboard armoring as had existed prior to the incident, as well as the repair of 15 other, smaller eroded areas on the levee fronting Arcata Bay. This Emergency Permit was conditioned to require the use of clean fill for the levee and clean rock (i.e., no debris, no re-bar) for the outboard armoring.

**Ten Year Programmatic Permit for Ongoing Repair and Maintenance Activities:** The final part of the project is a proposal for a ten-year permit to undertake routine repair and maintenance of the levee system. A detailed description of the proposed activities and method for accomplishing them is attached as Exhibit C. In summary, the Reclamation District maintenance program includes vegetation control (mowing) along the top of the levees to allow access for maintenance equipment, replacement of rip rap that has migrated or is needed to repair erosion, placement of clean fill to repair eroded areas and flood gate and culvert replacement with the same size facilities. All of the work is proposed within the existing footprint of the levee and will not result in any encroachment into Humboldt Bay or on the inboard (reclaimed land) side of the levee into the seasonal wetlands.

**B. Permit Authority, Extraordinary Methods of Repair and Maintenance.**

Coastal Act Section 30610(d) generally exempts from Coastal Act permitting requirements the repair or maintenance of structures that does not result in an addition to, or enlargement or expansion of the structure being repaired or maintained. However, the Commission retains authority to review certain extraordinary methods of repair and

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maintenance of existing structures that involve a risk of substantial adverse environmental impact as enumerated in Section 13252 of the Commission regulations. Section 30610 of the Coastal Act provides, in relevant part:

*Notwithstanding any other provision of this division, no coastal development permit shall be required pursuant to this chapter for the following types of development and in the following areas: . . .*

*(d) Repair or maintenance activities that do not result in an addition to, or enlargement or expansion of, the object of those repair or maintenance activities; provided, however, that if the commission determines that certain extraordinary methods of repair and maintenance involve a risk of substantial adverse environmental impact, it shall, by regulation, require that a permit be obtained pursuant to this chapter. [Emphasis added]*

Section 13252 of the Commission administrative regulations (14 CCR 13000 *et seq.*) provides, in relevant part:

*(a) For purposes of Public Resources Code section 30610(d), the following extraordinary methods of repair and maintenance shall require a coastal development permit because they involve a risk of substantial adverse environmental impact: . . .*

*(3) Any repair or maintenance to facilities or structures or work located in an environmentally sensitive habitat area, any sand area, within 50 feet of the edge of a coastal bluff or environmentally sensitive habitat area, or within 20 feet of coastal waters or streams that include:*

*(A) The placement or removal, whether temporary or permanent, of rip-rap, rocks, sand or other beach materials or any other forms of solid materials;*

*(B) The presence, whether temporary or permanent, of mechanized equipment or construction materials.*

*All repair and maintenance activities governed by the above provisions shall be subject to the permit regulations promulgated pursuant to the Coastal Act, including but not limited to the regulations governing administrative and emergency permits. The provisions of this section shall not be applicable to methods of repair and maintenance undertaken by the ports listed in Public Resources Code section 30700 unless so provided elsewhere in these regulations. The provisions of this section shall not be applicable to those activities specifically described in the document*

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*entitled Repair, Maintenance and Utility Hookups, adopted by the Commission on September 5, 1978 unless a proposed activity will have a risk of substantial adverse impact on public access, environmentally sensitive habitat area, wetlands, or public views to the ocean. ...*  
[Emphasis added.]

The proposed project is a repair and maintenance project because it does not involve an addition to or enlargement of the levee. Although certain types of repair projects are exempt from CDP requirements, Section 13252 of the regulations requires a coastal development permit for extraordinary methods of repair and maintenance enumerated in the regulation. The proposed levee repair involves the placement of construction materials and removal and placement of solid materials within 20 feet of coastal waters. The proposed repair project therefore requires a coastal development permit under Sections 13252(a)(1) of the Commission regulations.

In considering a permit application for a repair or maintenance project pursuant to the above-cited authority, the Commission reviews whether the proposed *method* of repair or maintenance is consistent with the Chapter 3 policies of the Coastal Act. The Commission's evaluation of such repair and maintenance projects does not extend to an evaluation of the conformity with the Coastal Act of the underlying existing development.

The repair and maintenance of levees can have adverse impacts on coastal resources, in this case primarily bay waters and the inboard seasonal wetlands, if not properly undertaken with appropriate mitigation. The Applicant proposes to maintain the levees in their existing footprint by repairing eroded areas with clean fill material similar to the existing earthwork, replacing outboard armoring as needed to avoid erosion, replacing failing culverts and floodgates to ensure that they function properly as drainage facilities and to keep access open along the top of the levees so that equipment and supplies can be brought in as needed. The methods proposed for maintaining the existing system are typical of levee maintenance statewide. The District has included a number of mitigation measures as part of their proposal such as limiting vegetation removal to the minimum necessary to allow access along the top of the levees, various spill prevention measures, designated staging areas and the consistent use of siltation fences in areas under active repair. These measures and others proposed by the District in their application are appropriate, however, additional measures are needed to avoid as necessary, or minimize impacts on water quality, wetlands and Environmentally Sensitive Habitat (ESHA). The conditions required to meet this standard are discussed in the following findings relevant to water quality and ESHA. Finally, the Applicant has requested a ten year permit for the on going maintenance and repair activities outlined in their application and described in Exhibit B. The Commission has, on occasion granted special districts multi-year permits for such activities (i.e. 3-04-72, Moss Landing Harbor District routine pier replacement; and 3-00-034, Santa Cruz Port District, routine maintenance dredging; and 3-02-047,



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Monterey Harbor, routine operations and maintenance) in order to reduce both Commission and District staff workload associated with processing repetitive, routine coastal permits. However, given the fact that circumstances can change over time and techniques for addressing maintenance needs can also evolve, the Commission chooses to grant an initial five year period of development authorization with a one-time ability to extend the period of development authorization for another five years for a maximum total of 10 years of development authorization if there are no changed circumstances that require review. This permit is conditioned accordingly. Therefore, as conditioned in these Findings, the Commission finds that the proposed project is consistent with PRC Section 30236.

**C. Public Access.**

This project is located between the first public road and the sea (Please see Exhibit A, Location Map). Section 30604 (c) of the Coastal Act requires that every Coastal Development Permit issued for development between the first public road and the sea “shall include a specific finding that the development is in conformity with the public access and public recreation policies of Chapter 3 (commencing with Section 30200).”

Coastal Act Policies

Section 30210 of the Coastal Act states:

*In carrying out the requirement of Section 4 of Article X of the California Constitution, maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the people consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resource areas from overuse.*

Section 30211 of the Coastal Act states:

*Development shall not interfere with the public's right of access to the sea where acquired through use or legislative authorization, including, but not limited to, the use of dry sand and rocky coastal beaches to the first line of terrestrial vegetation.*

Section 30212 of the Coastal Act states:

*(a) Public access from the nearest public roadway to the shoreline and along the coast shall be provided in new development projects except where (1) it is inconsistent with public safety, military security needs, or the protection of fragile coastal resources, (2) adequate access exists nearby, or (3) agriculture would be adversely affected. Dedicated access*

*way shall not be required to be opened to public use until a public agency or private association agrees to accept responsibility for maintenance and liability of the access way.*

- (b) *For purposes of this section, "new development" does not include:*
- (1) *Replacement of any structure pursuant to the provisions of subdivision (g) of Section 30610.*
  - (2) *The demolition and reconstruction of a single-family residence; provided, that the reconstructed residence shall not exceed either the floor area, height or bulk of the former structure by more than 10 percent, and that the reconstructed residence shall be sited in the same location on the affected property as the former structure.*
  - (3) *Improvements to any structure which do not change the intensity of its use, which do not increase either the floor area, height, or bulk of the structure by more than 10 percent, which do not block or impede public access, and which do not result in a seaward encroachment by the structure.*
  - (4) *The reconstruction or repair of any seawall; provided, however, that the reconstructed or repaired seawall is not seaward of the location of the former structure.*
  - (5) *Any repair or maintenance activity for which the commission has determined, pursuant to Section 30610, that a coastal development permit will be required unless the commission determines that the activity will have an adverse impact on lateral public access along the beach.*

*As used in this subdivision, "bulk" means total interior cubic volume as measured from the exterior surface of the structure.*

- (c) *Nothing in this division shall restrict public access nor shall it excuse the performance of duties and responsibilities of public agencies which are required by Sections 66478.1 to 66478.14, inclusive, of the Government Code and by Section 4 of Article X of the California Constitution. [Emphasis added.]*

The access policies cited above are those relevant to this project and direct the Commission to generally require maximum public access in new development unless the access would be inconsistent with public safety, resource protection, private property

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rights, or military security needs (§§30210 and 30212) or would be otherwise exempt from providing access by statute (§30212(b)(5)). Coastal Act Section 30211 requires that new development shall not interfere with existing public access that has been acquired either by use or through legislative authorization.

Analysis

As stated above, the proposed project is for the ongoing repair and maintenance of a pre Coastal Act levee system. Ordinarily, routine repair and maintenance is an exempt activity under Coastal Act Section 30610(d) and thus no coastal development permit would be required. Certain repair and maintenance activities are, however, excepted from this general exemption by regulation, as authorized by Section 30610(d), because they may “*involve the risk of substantial adverse environmental impact*”. The Commission’s regulations identify repair and maintenance activities performed near the shoreline, as proposed by this application, must obtain coastal development permits and are not exempt under Section 30610 (d) (California Code of Regulations, Title 14, Section 13252 (a) (3)). However, because repair and maintenance is not considered new development for purposes of Section 30212, Coastal Act Section 30212(b)(5) excludes these repair and maintenance activities from Coastal Act access requirements unless the Commission “*determines that the activity will have an adverse impact on lateral beach access.*”

The proposed repair and maintenance activities will have no impact on lateral beach access because the proposed work will be accomplished within the existing footprint of the levees, staging areas are located outside of any access or access points and because there is no beach adjacent to the levees. The project is, therefore consistent with the requirements of Sections 30210 and 30212.

Coastal Act Section 30211 also requires new development to not interfere with existing access. While exempt from this policy as discussed above, the Commission notes that the levee system has not been used by the public to gain access to the shores of Humboldt Bay and Mad River Slough during its long existence except by permission of the owners.

In conclusion, the proposed project is not considered new development for the purposes of application of the Public Access Policies of the Coastal Act because it is a repair and maintenance activity that will not adversely affect lateral beach access and is therefore consistent with the policy direction found in Section 30212.

**D. Water Quality.**

The proposed repair and maintenance work will take place on levees located immediately adjacent to Humboldt Bay on the outboard side and seasonal wetlands on the inboard

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side, thus there is a potential for adverse impacts to water quality of the bay waters and the waters that feed the seasonal wetlands.

Coastal Act Policy

Section 30231 of the Coastal Act states:

*The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.*

Coastal Act Section 30233 states:

- (a) The diking, filling, or dredging of open coastal waters, wetlands, estuaries, and lakes shall be permitted in accordance with other applicable provisions of this division, where there is no feasible less environmentally damaging alternative, and where feasible mitigation measures have been provided to minimize adverse environmental effects, and shall be limited to the following:*
  - (1) New or expanded port, energy, and coastal-dependent industrial facilities, including commercial fishing facilities.*
  - (2) Maintaining existing, or restoring previously dredged, depths in existing navigational channels, turning basins, vessel berthing and mooring areas, and boat launching ramps.*
  - (3) In wetland areas only, entrance channels for new or expanded boating facilities; and in a degraded wetland, identified by the Department of Fish and Game pursuant to subdivision (b) of Section 30411, for boating facilities if, in conjunction with such boating facilities, a substantial portion of the degraded wetland is restored and maintained as a biologically productive wetland. The size of the wetland area used for boating facilities, including berthing space, turning basins, necessary navigation channels, and any necessary support service facilities, shall not exceed 25 percent of the degraded wetland.*

- (4) *In open coastal waters, other than wetlands, including streams, estuaries, and lakes, new or expanded boating facilities and the placement of structural pilings for public recreational piers that provide public access and recreational opportunities.*
- (5) *Incidental public service purposes, including but not limited to, burying cables and pipes or inspection of piers and maintenance of existing intake and outfall lines.*
- (6) *Mineral extraction, including sand for restoring beaches, except in environmentally sensitive areas.*
- (7) *Restoration purposes.*
- (8) *Nature study, aquaculture, or similar resource dependent activities.*

(b) *Dredging and spoils disposal shall be planned and carried out to avoid significant disruption to marine and wildlife habitats and water circulation. Dredge spoils suitable for beach replenishment should be transported for such purposes to appropriate beaches or into suitable longshore current systems.*

(c) *In addition to the other provisions of this section, diking, filling, or dredging in existing estuaries and wetlands shall maintain or enhance the functional capacity of the wetland or estuary. Any alteration of coastal wetlands identified by the Department of Fish and Game, including, but not limited to, the 19 coastal wetlands identified in its report entitled, "Acquisition Priorities for the Coastal Wetlands of California", shall be limited to very minor incidental public facilities, restorative measures, nature study, commercial fishing facilities in Bodega Bay, and development in already developed parts of south San Diego Bay, if otherwise in accordance with this division.*

*For the purposes of this section, 'commercial fishing facilities in Bodega Bay' means that not less than 80 percent of all boating facilities proposed to be developed or improved, where such improvement would create additional berths in Bodega Bay, shall be designed and used for commercial fishing activities.*

(d) *Erosion control and flood control facilities constructed on watercourses can impede the movement of sediment and nutrients which*

*would otherwise be carried by storm runoff into coastal waters. To facilitate the continued delivery of these sediments to the littoral zone, whenever feasible, the material removed from these facilities may be placed at appropriate points on the shoreline in accordance with other applicable provisions of this division, where feasible mitigation measures have been provided to minimize adverse environmental effects. Aspects that shall be considered before issuing a coastal development permit for such purposes are the method of placement, time of year of placement, and sensitivity of the placement area.*

These policies require the protection of coastal waters to ensure biological productivity, protect public health and water quality. New development must not adversely affect these values and should help to restore them when possible.

#### Analysis

Implementation of the proposed repair and maintenance program will result in the transportation and placement of fill and armoring materials to the sites to be maintained, the removal and replacement of culverts and flood gates, the use of staging areas for stockpiling of materials to be used for the project and other material to be disposed of (old culverts, excess fill etc.) and the removal of vegetation by mechanical mowing equipment. Unless appropriate protocols are followed, all of these activities could result in fuel or oil spills, improper storage of materials in or adjacent to sensitive areas, increased turbidity that would have adverse impacts on water quality. The repair and maintenance program proposed by the District includes a number of protocols to protect water quality including the use of geo-textile fabric between fill and armoring to reduce migration of fill into bay waters, the consistent use of siltation fences at work sites to reduce discharges, proper disposal of abandoned or excess materials and vegetation to appropriate off site disposal facilities, a prohibition on the storage of any excess materials within any wetland including the transitional agricultural lands, spill prevention measures and the location of a staging area outside any sensitive lands (see Exhibits C, Project Description).

In general, the protocols proposed by the District are appropriate to protect water quality although they lack adequate specificity in some instances, a lack that is remedied by conditions attached to these Findings. The District's proposal also includes one measure that does not meet current standards however, and that is the provision for the temporary filling of the inboard ditch to provide levee top access for equipment (Ditch Crossings, page 2, Project Description, Exhibit B). The inboard ditch, has over the years, taken on the characteristics of a wetland (hydric soils, wetland vegetation, etc). The introduction of the temporary fill and culverts will have an adverse impact on the portion of the wetland covered by the material and also on the water quality of the unfilled portions

nearby due to increased turbidity caused by fill placement. The use of a temporary bridge to gain access is feasible and would avoid the need to place fill in the wetland.

The proposed protocols are also incomplete in other areas. For example, the proposed protocols do not limit repair and maintenance activities to dry periods. Work performed during rainy periods is much more likely to result in the discharge of inappropriate material into the adjacent waters because the fill will be saturated. The proposed protocols also lack specificity regarding the type of fill material and armoring that can be used. The normal run off from the use of contaminated materials would have an adverse impact on water quality. Finally, the protocols do not provide for monitoring, or pre-construction training for the contractor to ensure the proper protocols are understood and carried out.

As conditioned to add specificity to proposed protocols, bridge rather than fill the ditch, limit work to dry times, identify appropriate fill and armoring materials, monitor the work and train the contractor, this project is consistent with the direction of Policy 30231 and 30233 to protect water quality.

E. Marine Resources.

The outboard side of the levee system is, in most places adjacent to Humboldt Bay and the proposed repair and maintenance program has the potential to adversely affect marine resources. The following section of the Coastal Act requires that new development maintain, enhance and where feasible restore damaged marine resources.

Coastal Act Policy

Section 30230 of the Coastal Act states:

*Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.*

Analysis

The waters of Humboldt Bay provide habitat for a number of marine species. The Biological Report prepared by Mad River Biologists on August 14, 2003 discusses the habitat value of the bay and bay muds near the project site and reports that Humboldt Bay in the vicinity of the project is home to one endangered species, the Tidewater Goby and

two plant species of concern, Point Reyes Birds Beak and Humboldt Bay Owls Clover. (see Exhibit D, Habitat Assessment for Humboldt County Reclamation District 768, Culvert and Flood Gate Replacement Project.). The report states that the Tidewater Goby is sensitive to turbidity in the water and therefore recommends that siltation fences be used when working on the outboard side of the levee in order to avoid the discharge of sediments into the bay waters. As conditioned to train contractors prior to work and to require the use of siltation fences, the impact on the Tidewater Goby from the proposed repair and maintenance activities will be insignificant. The habitat assessment also identified rare salt marsh plants growing in the vicinity of the project but did not survey all of the outboard side of the levee to determine the location, if any, of these plants on the Districts levees. The report does state that “no habitat likely to support either the Point Reyes Birds Beak or the Humboldt Bay Owl’s Clover exists on the site.” In order to assure protection of these resources, Special Condition No. 2m requires an annual survey of any sites chosen for repair and maintenance activities that are within potential habitat areas prior to the commencement of that year’s work to determine if either of the rare plants exist within the work areas. If such rare plants are found, significant disruption of the plants must be avoided. As conditioned, the project can be found consistent with the Coastal Act Policy 30230.

**F. Environmentally Sensitive Habitat.**

Because the Tidewater Goby and the Point Reyes Bird Beak and Humboldt Bay Owl’s Clover are rare, their habitat meets the definition of Environmentally Sensitive Habitat (ESHA) found in the Coastal Act (PRC Section 30107.5) and thus development adjacent to these habitats must also comply with Section 30240 (b) of the Coastal Act.

**Coastal Act Policy**

Section 30240 of the Coastal Act states:

*(a) Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas.*

*(b) Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.*

**Analysis**



For the reasons discussed in the previous Findings on Marine Resources and Water Quality, as conditioned, the proposed project will not significantly degrade the adjacent Tidewater Goby, Point Reyes's Birds Beak or Humboldt Bay Owl's Clover habitat and is compatible with the continuance of the habitat as required by PRC Section 30240 (b).

**G. California Environmental Quality Act (CEQA).**

Section 13096 of the California Code of Regulations requires that a specific finding be made in conjunction with coastal development permit applications showing the application to be consistent with any applicable requirements of CEQA. Section 21080.5(d)(2)(A) of CEQA prohibits a proposed development from being approved if there are feasible alternatives or feasible mitigation measures available which would substantially lessen any significant adverse effect which the activity may have on the environment.

The Coastal Commission's review and analysis of land use proposals has been certified by the Secretary of Resources as being the functional equivalent of environmental review under CEQA. This staff report has discussed the relevant coastal resource issues with the proposal, and has recommended appropriate mitigations to address adverse impacts to said resources. Accordingly, the project is being approved subject to conditions which implement the mitigating actions required of the Applicant by the Commission (see Section III, "Special Conditions").

The Commission incorporates its findings on Coastal Act consistency at this point as if set forth in full. As discussed above, the proposed project has been conditioned to achieve consistency between the proposed project and the requirements of the applicable policies of the Coastal Act. These findings address and respond to all public comments regarding potential significant adverse environmental effects of the project that were received prior to preparation of the staff report. Mitigation measures that will minimize or avoid all significant adverse environmental impact have been required.

As conditioned, there are no feasible alternatives or feasible mitigation measures available, beyond those required, which would substantially lessen any significant adverse impact that the activity would have on the environment. Therefore, the Commission finds that the proposed project, as conditioned to mitigate the identified impacts, can be found consistent with the requirements of the Coastal Act and to conform to CEQA. As such, the Commission finds that only as modified and conditioned by this permit will the proposed project not have any significant adverse effects on the environment within the meaning of CEQA.

**V. EXHIBITS**

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- A. Location Map
- B. Emergency Permits
- C. Project Description
- D. Habitat Report